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DECLINATIONS OF CERTAIN NORTH POLAR
STARS DETERMINED WITH THE
MERIDIAN CIRCLE

*Dissertation of The University
of Michigan*

BY
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INSTRUCTOR IN ASTRONOMY, SMITH COLLEGE.

A THESIS PRESENTED TO THE FACULTY OF THE UNIVERSITY OF MICHIGAN
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY



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THE stars whose right ascensions and declinations I have observed with the Meridian Circle are those requested by Dr. Auwers in the *Astromische Nachrichten*, No. 3440. They comprise a list of 21 stars between $84^{\circ} 34'$ and $88^{\circ} 55'$ north declination and in magnitude ranging from 5.3 to 7.5. As Dr. Auwers points out, the *Berliner Jahrbuch* at present gives but 10 stars of declination above 82° , 5 of these being above 85° ; and these are not symmetrically placed in right ascension leaving several gaps of 2 or 3 hours when an observer would find no fundamental star of high declination available. The present observations were undertaken to furnish accurate places of additional stars of high declination for use when such are needed in determining instrumental constants.

The observations were begun in October, 1901, and extended through the period to the end of June, 1903. The right ascensions have not yet been reduced.

The Walker Meridian Circle was built by Pistor and Martins of Berlin in 1854. The telescope tube is heavy, unsymmetrical, and shows considerable flexure; the object-glass and eye-ends are not interchangeable, as in many modern instruments. The objective, of 6.3 inches aperture, was examined at the Physical Laboratory. The focal length, 251.6 cm. or 8 ft. 0.8 in., was determined by measurements on the negative unit

planes. The radii of curvature, measured with the spherometer, were found to be 165.7 cm. for the outer curve, 274.4 cm. for the inner curve. The structure of the glass was examined by means of Nicol prisms at conjugate foci. For perpendicular position of the prisms the lens instead of being entirely dark shows irregular light portions extending toward the center, due to irregular polarization in the glass. Practically, however, the lens gives excellent star images for meridian circle work, *i. e.*, small, round disks, of uniform size across the entire field.

The graduated circles of the instrument are $37\frac{1}{2}$ inches in diameter. The fine circle, which was the one employed, is graduated to $2'$ and is read by 4 microscopes of 16 magnifying power reading to tenths of a second of arc. Each microscope has been furnished with two sets of threads one and a half revolutions apart to eliminate periodic error. For a reading two divisions of the circle were pointed on, the micrometer screw being turned always one half revolution. The readings were corrected for error in the run.

The micrometer eye-piece was obtained a few years ago from the Repsolds. It contains 25 verticle threads in groups of 5, and 2 horizontal threads about $5''$ apart. There is no declination micrometer screw. Settings were made with the tangent screw of the instrument, bringing the star to the point half-way between the horizontal threads. It was usually found possible to make 3 or more pointings with the corresponding readings of the microscopes while the star was crossing the field. The positions off the meridian were symmetrically chosen to avoid error caused by possible inclination of the wires. The reductions to the meridian were made according to the formula

$$z = z' - \sin 2\delta' \frac{\sin^2 \frac{1}{2}t}{\sin 1''}$$

where δ' is the apparent declination. In this form a second term becomes negligible. (See Leyden Observations, Vol. VI, p. LX.) Tables were made out for each star from which the correction could be taken with the declination and hour angle as arguments.

Observations for nadir were made about every 3 hours. These

were obtained by turning the telescope over a mercury basin and observing the reflection of the horizontal threads by means of a collimating eye-piece. Four settings were made, the mercury basin being turned 180° in the middle of the set. When successive nadirs differed by more than $0''.50$, it was assumed that the difference was directly proportional to the time; when the difference was less than $0''.50$ the straight mean was taken. Occasionally during observations for nadir the instrument seemed to move after a setting had been made, showing either that it was under a strain, or possibly that the surface of the mercury changed slightly.

The plan was to obtain for each star, both at upper and lower culminations, 2 observations in each of the four following positions: clamp west, direct; clamp west, reflected; clamp east, direct; clamp east, reflected. This plan was not entirely carried out as the tables show, in part due to the difficulty in obtaining reflected observations. These were often prevented by wind or unsteady seeing. Often, too, reflected observations were prevented by trains on the Michigan Central Railroad, and sometimes by the shutting of a door in another part of the building. Nevertheless, nearly as many reflected observations were obtained as direct. They seem to be quite as consistent among themselves as the direct; perhaps they are in a sense selected observations. Each night's observing list included at least one of the Berliner Jahrbuch stars.

Advantage in combining reflected and direct observations is found in the fact that different sets of divisions on the circle are employed, thus largely eliminating division errors, and in the fact that the sign of the sine flexure is reversed. In the mean of the 4 positions: W. D.; W. R.; E. D.; E. R.; the first 2 terms of the cosine flexure and the first term of the sine flexure are eliminated.

To determine the amount of the flexure the following formulæ were employed:

$$\begin{aligned} \text{W. D.} \quad \quad \quad \zeta &= z_1 + a' \cos z + b' \sin z - (180^\circ + N) + a' \\ \text{W. R.} \quad (180^\circ - \zeta) &= z_2 - a' \cos z + b' \sin z - (180^\circ + N) + a' \\ \text{E. D.} \quad (360^\circ - \zeta) &= z_3 + a' \cos z - b' \sin z - (180^\circ + N) + a' \\ \text{E. R.} \quad (180^\circ + \zeta) &= z_4 - a' \cos z - b' \sin z - (180^\circ + N) + a' \end{aligned}$$

The coefficient of cosine flexure found was $1''.694$; and of sine flexure, $0''.117$. In the case of clamp west the circle readings increase from the zenith toward the north and the formula for flexure correction is

$$\zeta = z + 0''.162 - 1''.694 \cos z + 0''.117 \sin z - 1''.694$$

The large cosine flexure was also found by Dr. Hall. (See "Reprint from Report of Michigan Academy of Science," 1904.)

Corrections for division errors were not applied. Some examination of the circle was made to determine its general character. The mean of the 4 divisions, 0° , 90° , 180° , 270° , was assumed to be without error. In finding the errors of the intermediate divisions, taking also as a division the mean of 4 marks 90° apart, 2 microscope arms were set 100° apart, 110° apart, etc. Readings were then made on a number of 100° spaces, for instance, distributed symmetrically around the circle; these readings were taken forward and back so as to eliminate progressive changes in the instrument depending on the time. The mean of these readings was assumed to be the correct 100° space and was used for obtaining the error of the 100° mark on the circle. The microscopes were afterward changed 180° from their first position and the process repeated.

The 2 columns of division errors given show the changes produced by placing the microscopes in the two positions. Evidently the effect of gravity is considerable as might be expected from the structure of the circle, which is rather frail.

Divisions.		Division Errors.		Means.
100°	(vs. 10° etc.)	$-0''.11$	$-0''.62$	$-0''.36$
110	20	-0.33	-0.84	-0.58
120	30	-0.50	-0.58	-0.54
130	40	-0.72	-0.62	-0.67
140	50	-0.70	-0.62	-0.66
150	60	-0.34	-0.94	-0.64
160	70	$+0.06$	-0.26	-0.10
170	80	$+0.40$	$+0.02$	$+0.21$
180	90	0.00	0.00	0.00

Two tables of observed declinations are presented, the first

giving the absolute declinations from the circle readings without correction for flexure or division errors; the second giving the declinations of the list stars from comparison with the one or more zero stars observed on the same night.

In Table I the observed zenith distances are given, corrected for runs, reduction to the meridian, and refraction. Bessel's refraction tables were employed, as prepared by Professor Eastman of the Naval Observatory. The standard barometer was repaired and tested a few years ago by the Weather Bureau Office in Washington. The thermometers also have been tested by them and by the weather bureau official at Lansing. During observations the thermometer was hung near the object glass of the telescope, and the readings were corrected when necessary, according to the table of corrections determined by the Weather Bureau Office.

The next column in Table I gives the observed zenith distances, reduced to Jan. 0.0 of the year of observation. These reductions were made with the "Independent Star Numbers" G, H, etc., given for each day in the *Berliner Jahrbuch*. They were checked by a sufficient number of identical reductions made with the Besselian Star Numbers, A, B, C, D, E, from the *Berliner Jahrbuch* and the star constants from Dr. Auwers's list in the *Astronomische Nachrichten*.

The zenith distances are then reduced to Jan. 0.0, 1900 and the means taken of the different observations of each position. In obtaining these means, a system of weights depending on the number of settings in each case was adopted as follows: probable error of one setting $0''.33$; probable error of nadir determination $0''.25$; probable error in refraction tables $0''.30$, giving as weights:

No. of Settings.	Weight.
1	.72
2	.90
3	1.00
4	1.04
5	1.08
6	1.10
7	1.11

The reflected observations are also corrected for the position of the mercury basin, the correction being $h \tan z$ where h is height of telescope axes above the artificial horizon. This correction is $0''.04$ for upper culmination, and $0''.03$ for lower.

The mean of the 4 positions above pole combined with the mean of the 4 below gives the value for latitude corresponding to each star.

List Stars.		LATITUDE.		B. J. Stars.	
Cephei Br. 256	49.35	43 H. Cephei	48.74		
Cephei 157 Hs.	48.95	Polaris	48.82		
Cephei 158 Hs.	48.86	Gr. 750	48.68		
Cephei 109 Hs.	48.72	51 H. Cephei	48.80		
Urs. min. 4 B	48.71	1 H Draconis	48.76		
Cephei 121 Hs.	48.48	30 H. Camelop.	49.10		
Urs. min. 3 Hs.	48.42	δ Urs. min.	48.94		
32 H. Camel. pr.	48.70	λ Urs. min.	48.65		
" " " seq.	49.08	76 Draconis	48.80		
Cephei 135 Hs.	48.75	Mean	48.81		
Urs. min. 57 B	48.74				
Cephei 3 Hs.	48.60				
Cephei Gr. 3548	48.60				
32 H. Cephei	48.72				
36 H. Cephei	48.58				
39 H. Cephei	48.61				
Cephei 125 Hs.	48.72				
Mean	48.74				

The nine zero stars give $48''.81$; the seventeen others, $48''.74$. The value from the nine was given half weight and the adopted value for the latitude of Ann Arbor is $42^\circ 16' 48''.76$.

The value found recently by Dr. Hall is $48''.8$ (see *Astronomical Journal*, 518).

This value of the latitude combined with the zenith distances gives for each star the eight values of declination in the last column of Table I. The mean of the four values above pole, with the mean of the four below, gives the final value of absolute declination.

In the case of the five stars not observed in all eight positions, adopted values of declination were found by correcting for flex-

ure the places obtained and combining them with arbitrary weights as follows:

Cephei 147 Hs. $\frac{1}{4}$ (W. D. + 2 W. R. + E. D.) for declination above pole, combined with equal weight with position below pole.

Cephei 149 Hs. $\frac{1}{4}$ (2 W. D. + W. R. + E. R.) for declination above pole, and then treated like preceding star.

Camelopardis 664. Mean of the four positions above pole.

Urs. min. 33 Hs. $\frac{1}{2}$ (W. D. + E. D.) for position below pole, combined with half weight with observations above pole.

ϵ *Urs. min.* W. D. below pole combined with $\frac{1}{3}$ weight with the mean of the remaining observations.

In Table II in comparing the stars of the list with the zero stars observed on the same night, differential flexure was applied. No attempt has been made to give weights to the means depending on the number of zero stars employed. The final declinations obtained by the two methods are found to agree closely.

Table III gives a summary of the observed declinations together with the declinations given in Newcomb's "Fundamental Catalogue of Stars," and those given in the Berliner Jahrbuch for 1900, so far as the observed stars are found in either catalogue. The Berliner Jahrbuch for 1906 gives also in the appendix definitive corrections to the places as given in the main catalogue. The last column of Table III has been formed by adding these corrections to the catalogue places, and reducing from 1906 to 1900, employing the Berliner Jahrbuch values for precession without including proper motion. In the first column of observed declinations the five values obtained, as described above, from incomplete sets of observations are bracketed.

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. POLARIS.

	Date of Obs.	No. of Set- tings.	Zenith Distance.			Declina- tion, 1900.0.
			Year of Obs.		1900.0.	
			Obs.	Jan. 0.0.		
Above Pole.			46° 29'		46° 29'	88° 46'
					Weighted Mean.	
	Jan. 8, '02	4	100.82	78.42	40.92	
	Oct. 7, '02	4	90.04	77.75	40.25	
	Oct. 8, '02	5	92.38	79.69	42.19	
	Oct. 9, '02	3	91.31	78.21	40.71	
	Oct. 28, '02	4	97.05	76.81	39.31	40.58 29.34
	Oct. 29, '02	4	97.81	77.24	39.74	
	Oct. 30, '02	5	98.89	77.99	40.49	
	Oct. 31, '02	7	99.71	78.47	40.97	
	Dec. 6, '01	3	91.28	55.78	37.02	
	Oct. 20, '02	5	91.15	74.02	36.52	
	Oct. 21, '02	3	92.19	74.64	37.14	37.35 26.11
	Oct. 24, '02	6	94.52	75.73	38.23	
	Dec. 18, '02	3	110.89	75.06	37.56	
	Nov. 12, '02	4	98.91	73.38	35.88	
	Nov. 21, '02	2	102.73	74.06	36.56	35.59 24.35
	Nov. 24, '02	5	102.34	72.76	35.26	
	Nov. 28, '02	3	103.86	73.18	35.68	
	Feb. 5, '03	2	110.06	90.80	34.57	
Below Pole.			48° 55'		48° 56'	
	Dec. 2, '01	1	91.26	56.69	37.93	
	Nov. 19, '02	2	103.08	75.11	37.61	37.72 26.48
	Nov. 21, '02	3	103.72	75.05	37.55	
					37.81	26.57
			48° 55'		48° 56'	
	Apr. 11, '02	1	65.31	70.46	47.96	
	Apr. 24, '02	5	68.91	70.05	47.55	
	Apr. 28, '02	2	70.55	70.60	48.10	
	June 8, '02	1	79.21	70.52	48.02	
	Mar. 21, '03	4	40.31	49.77	46.00	46.96 24.28
	Mar. 25, '03	2	41.90	50.19	46.42	
	Mar. 28, '03	3	43.02	50.28	46.51	
	Mar. 29, '03	3	42.81	49.72	45.95	
	May 29, '03	2	60.23	50.56	46.79	
	Apr. 29, '02	3	66.62	66.41	43.91	
	June 3, '02	3	74.55	66.40	43.90	
	June 8, '02	3	74.31	65.62	43.12	44.03 27.21
	Mar. 25, '03	3	39.91	48.20	44.43	
	May 29, '03	2	58.17	48.50	44.73	

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. CEPHEI 147 HS.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declination. 1900.0
			Year of Obs.		1900.0		
			Obs.	Jan. o.o.			
Above Pole.			42° 16'		42° 16'		84° 33'
	W.D.	Dec. 11, '01	2	75.83	54.17	40.66	29.59 (wt. 1)
		Jan. 8, '02	3	83.15	67.99	40.99	
	W.R.	Dec. 5, '01	1	71.57	51.79	38.28	27.08
						38.32	+ .28 ¹
							27.36 (wt. 2)
	E.D.	Nov. 12, '02	1	72.60	63.36	36.36	24.10 (wt. 1)
		Nov. 28, '02	2	76.95	62.19	35.19	
		Feb. 5, '03	3	90.98	75.23	34.75	
	E.R.						[27.10]
Below Pole.			53° 08'		53° 09'		
	W.D.	June 14, '02	3	90.17	80.39	47.39	24.34
		Mar. 29, '03	1	56.53	65.73	46.21	
	W.R.	June 3, '02	1	84.67	77.37	44.37	26.63
		Mar. 25, '03	2	54.18	64.35	44.83	
		Mar. 28, '03	2	54.55	64.00	44.48	
	E.D.	May 9, '02	1	75.79	75.40	42.40	29.55
		May 16, '02	1	77.34	74.88	41.88	
		Apr. 9, '03	3	54.32	60.56	41.04	
	E.R.	May 21, '02	2	81.83	77.94	44.94	26.03
		May 22, '02	1	82.11	77.95	44.95	
		June 26, '02	1	89.46	77.54	44.54	
		Apr. 28, '03	1	65.55	66.16	46.64	
						44.60	26.64
							[26.87]

¹ Cos flexure and absolute term.

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. CEPHEI 149 HS.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declination. 1900.0.
			Year of Obs.		1900.0.		
			Obs.	Jan. 0.0.			
Above Pole.			44°03'		44°03'		
						Weighted Mean.	
	W.D.	Dec. 11, '01	1	39.80	22.63	10.77	
		Jan. 8, '02	2	47.48	34.43	10.74	10.75
							59.51 -2.75 ²
							56.76 (wt. 2)
	W.R.	Jan. 22, '02	3	47.34	31.68	7.99	
		Feb. 15, '02	2	47.41	29.92	6.23	7.20
							55.96
	E.D.	Nov. 24, '02	3	40.15	31.40	[7.71] ¹	
E.R.	Nov. 19, '02	3	38.76	31.73	8.04		
	Nov. 21, '02	2	39.60	31.88	8.19	8.15	
							56.91
							[56.60]
Below Pole.			51°22'		51°23'		
	W.D.	June 8, '02	2	61.26	53.17	16.86	
		June 13, '02	1	62.99	53.67	17.36	17.32
		June 14, '02	3	63.58	54.02	17.71	
							53.92
	W.R.	Apr. 29, '02	3	46.11	49.69	13.38	
		June 3, '02	3	56.86	50.06	13.75	13.59
							57.65
	E.D.	May 8, '02	1	44.87	45.68	9.37	
		May 13, '02	3	48.02	47.30	10.99	10.48
		May 25, '02	2	51.40	47.12	10.81	
							60.76
	E.R.	May 21, '02	5	53.93	50.81	14.50	
		May 22, '02	3	55.22	51.80	15.49	15.01
							56.23
						14.10	
						57.14	
						[56.87]	

¹ There is evidently a large error in this value; probably due to an error in the original record.² Cos flexure and absolute term.

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. CEPHEI 157 HS.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declina- tion. 1900.0	
			Year of Obs.		1900.0			
			Obs.	Jan. o.o.				
Above Pole.			43°33'		43°32'		85°49'	
					Weighted Mean.			
	W.D.	Feb. 22, '02	3	25.12	11.70	60.91	49.48	
		Feb. 24, '02	3	24.88	11.31	60.52		
	W.R.	Feb. 13, '02	4	20.25	7.70	56.91	45.74	
		Feb. 15, '02	2	20.55	7.76	56.97		
	E.D.	Mar. 5, '02	3	19.64	5.82	55.03	43.40	
		Mar. 6, '02	1	18.93	5.10	54.31		
		Feb. 5, '03	2	19.87	10.60	54.46		
	E.R.	Feb. 24, '03	1	24.76	13.24	57.10	45.98	
	Feb. 26, '03	2	25.01	13.39	57.25			
Below Pole.						57.39	46.15	
			51°52'		51°53'			
	W.D.	June 9, '02	3	83.48	76.87	27.66	43.88	
		June 13, '02	5	84.62	76.83	27.62		
		Mar. 29, '03	4	60.47	70.65	26.79		
	W.R.	June 3, '02	3	78.36	73.54	24.33	46.61	
		June 5, '02	1	78.70	73.27	24.06		
		Mar. 28, '03	3	58.80	69.12	25.26		
	E.D.	June 16, '02	3	80.77	72.11	22.90	49.08	
		June 17, '02	3	79.56	70.62	21.41		
	E.R.	June 24, '02	4	85.12	74.23	25.02	46.56	
		June 26, '02	3	84.90	73.48	24.27		
							24.71	46.53
								46.34

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. CEPHEI 158 HS.

		Date of Obs.	No. of Set-tings.	Zenith Distance.			Declina- tion. 1900.0.	
				Year of Obs. Obs. Jan. o.o.		1900.0.		
Above Pole.				42°52'		42°51'	85°08'	
						Weighted Mean.		
	W.D.	Jan. 16, '02	3	12.84	9.29	64.07	52.73	
		Feb. 15, '02	3	18.92	8.65	63.43		
		Feb. 22, '02	1	21.01	9.80	64.58		
	W.R.	Jan. 22, '02	2	10.45	5.27	60.05	59.99	
		Feb. 13, '02	3	15.04	5.08	59.86		
	E.D.	Mar. 4, '02	3	15.50	3.45	58.23	58.64	
		Mar. 5, '02	3	16.38	4.27	59.05		
	E.R.	Mar. 6, '02	2	19.20	7.05	61.83	61.63	
		Feb. 24, '03	1	18.69	9.07	61.29		
		Feb. 25, '03	1	19.09	9.36	61.58		
		Mar. 2, '03	2	19.55	9.38	61.60		
						61.06	49.82	
Below Pole.				52°34'		52°34'		
	W.D.	June 5, '02	3	24.29	19.82	25.04	23.88	
		June 9, '02	3	24.33	18.65	23.87		
		Mar. 29, '03	3	5.10	14.94	22.72		
	W.R.	June 3, '02	2	17.87	14.01	19.23	20.48	
		Mar. 28, '03	2	3.96	13.89	21.67		
	E.D.	June 16, '02	3	21.06	13.27	18.49	18.28	
		June 17, '02	3	20.93	12.85	18.07		
	E.R.	May 21, '02	2	17.14	17.19	22.41	22.27	
		May 22, '02	3	17.11	16.87	22.09		
							21.23	50.01
								49.92

TABLE I. ABSOLUTE DECLINATIONS FOR 1900.0. 51 H. CEPHEI.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declina- tion. 1900.0.
			Year of Obs. Obs. Jan. 0.0.		1900.0.		
Above Pole.			44°55'		44°55'		87°12'
						Weighted Mean.	
	W.D.	Mar. 29, '02	1	34".87	25".43	34".93	
		Mar. 25, '03	3	28.98	20.52	34.84	34".88
	W.R.	Feb. 15, '02	2	25.09	21.52	31.02	31.06
							19.82
	E.D.	Mar. 5, '02	1	26.24	19.02	28.52	
		Mar. 24, '02	1	28.11	18.74	28.24	28.48
		Feb. 6, '03	3	14.38	14.30	28.62	
							17.24
	E.R.	Mar. 6, '02	3	30.89	23.48	32.98	
		Mar. 19, '02	3	32.47	23.56	33.06	
		Feb. 13, '03	3	19.64	17.60	31.92	
		Feb. 25, '03	2	23.28	18.49	32.81	32.66
		Feb. 26, '03	3	22.77	17.74	32.06	
		Mar. 2, '03	4	24.40	18.57	32.89	
Below Pole.						31.77	20.53
			50°30'		50°30'		
	W.D.	June 13, '02	3	68".16	64".27	54".77	
		June 9, '03	2	69.49	66.12	51.80	52".92
		June 14, '03	1	70.92	66.09	51.77	
							18".32
	W.R.	June 27, '02	1	68.30	60.04	50.54	
		June 9, '03	1	69.12	65.75	51.43	50.84
		June 14, '03	2	69.68	64.85	50.53	
							20.40
	E.D.	June 17, '02	1	62.41	57.23	47.73	
		Apr. 27, '03	4	55.60	62.37	48.05	47.92
							23.32
	E.R.	June 26, '02	2	67.79	59.83	50.33	
		June 25, '03	2	73.90	65.57	51.25	50.82
							20.42
						50.62	20.62
							20.57

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. CEPHEI 109 HS.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declina- tion. 1900.0
			Year of Obs.		1900.0		
			Obs.	Jan. o.o.			
Above Pole.			42°03'		42°03'		84°20'
						Weighted Mean.	
	W.D.	Mar. 29, '02	3	51.95	45.37	64.40	
		Apr. 11, '02	2	52.46	45.07	64.10	53.02
	W.R.	Feb. 15, '02	2	37.92	39.89	58.92	
		Mar. 21, '03	2	36.83	31.56	60.14	48.33
	E.D.	Mar. 4, '02	3	42.26	39.86	58.89	
		Mar. 5, '02	3	40.94	38.31	57.34	46.88
	E.R.	Mar. 19, '02	3	48.09	42.80	61.83	
		Mar. 27, '02	3	49.80	43.44	62.47	50.95
Below Pole.						61.04	49.80
			53°22'		53°22'		
	W.D.	June 5, '02	3	41.96	42.39	23.36	
		Oct. 6, '02	2	76.21	43.30	24.27	23.79
							47.45
	W.R.	Oct. 7, '02	1	73.04	40.01	20.98	
		Oct. 18, '02	1	75.10	40.99	21.96	
		Oct. 20, '02	1	74.47	40.22	21.19	21.21
		June 9, '03	2	49.84	49.28	20.70	50.03
	E.D.	June 17, '02	2	40.80	37.99	18.96	
		Sept. 15, '02	2	66.86	37.59	18.56	18.76
	E.R.	June 26, '02	2	46.79	41.34	22.31	52.48
						22.34	48.90
						21.52	49.72
							49.76

TABLE I. ABSOLUTE DECLINATIONS FOR 1900.0. 30 H. CAMELOP.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declina- tion. 1900.0.	
			Year of Obs.		1900.0.			
			Obs.	Jan. o.o.				
Above Pole.			40°46'		40°47'		83°3'	
						Weighted Mean.		
	W.D.	May 2, '02	2	44.53	39.53	15.74	16.10	64.86
		Mar. 21, '03	2	19.80	22.13	16.46		
	W.R.	Apr. 15, '02	3	38.98	36.46	12.67	13.44	62.20
		Mar. 25, '03	2	17.90	19.10	13.43		
		Mar. 28, '03	3	19.39	19.78	14.11		
	E.D.	Feb. 26, '03	3	7.52	16.90	11.23	11.23	59.99
		Apr. 9, '03	2	19.45	16.90	11.23		
	E.R.	Feb. 24, '03	1	9.62	19.63	13.96	14.04	62.80
	Apr. 7, '03	2	21.80	19.70	14.03			
Below Pole.			54°39'		54°39'			
	W.D.	Oct. 4, '01	2	59.00	28.07	9.96	9.88	61.36
		Oct. 6, '02	1	76.58	45.99	9.78		
	W.R.	Oct. 5, '01	2	57.31	26.05	7.94	8.15	63.09
		Oct. 7, '01	2	58.38	26.47	8.36		
		Oct. 21, '02	3	79.27	44.27	8.06		
	E.D.	Oct. 23, '01	3	60.04	23.48	5.37	6.11	65.13
		Oct. 25, '01	2	61.41	24.33	6.22		
		Nov. 21, '02	2	84.30	43.04	6.83		
	E.R.	Nov. 30, '01	2	69.02	25.81	7.70	8.28	62.96
		Nov. 20, '02	2	86.14	45.01	8.80		
							8.10	63.14
								62.80

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. CAMEL. s. 664.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declination. 1900.0.
			Year of Obs.		1900.0.		
			Obs.	Jan. 0.0.			
Above Pole.			43°52'		43°54'		86°10'
					Weight'd Mean.		
	W.D.	Mar. 21, '03	3	68".56	72".66	10".95	
		Mar. 29, '03	3	71.64	73.33	11.62	11".28
							60".04
	W.R.	Mar. 28, '03	2	69.50	71.49	9.78	
		Mar. 31, '03	3	69.88	70.99	9.28	9.56
							58.32
	E.D.	Feb. 6, '03	3	50.59	67.86	6.15	
		Feb. 26, '03	3	55.93	67.35	5.64	5.90
							54.66
	Feb. 21, '03	2	57.25	70.22	8.51		
E.R.	Feb. 25, '03	2	59.85	71.58	9.87	9.33	
	Mar. 2, '03	3	61.02	71.18	9.47		
						9.02	

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0.

URS. MIN. 3 HS.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declina- tion. 1900.0
			Year of Obs.		1900.0		
			Obs.	Jan. o.o.			
Above Pole.			45°57'		45°58'		88°15'
						Weighted Mean.	
	W.D.	Apr. 11, '02	5	47.28	49.98	29.87	
		Apr. 24, '02	1	49.85	48.92	28.81	18.26
		Mar. 28, '03	3	24.80	29.76	29.60	
	W.R.	Apr. 10, '02	6	43.16	46.15	26.04	
		Apr. 15, '02	3	44.25	45.78	25.67	14.66
	E.D.	May 13, '02	1	48.03	42.91	22.80	
		May 22, '02	2	49.64	43.13	23.02	
		May 25, '02	3	50.20	43.34	23.23	11.91
		Feb. 6, '03	4	4.41	23.58	23.42	
	E.R.	May 24, '02	3	53.39	46.64	26.53	
		Feb. 25, '03	3	12.09	26.65	26.49	15.49
		Mar. 2, '03	2	14.10	27.24	27.08	
						26.32	15.08
Below Pole.			49°28'		49°27'		
	W.D.	Dec. 11, '01	1	62.29	19.56	59.61	
		Jan. 8, '02	3	64.89	40.27	60.38	11.31
		Oct. 1, '02	4	58.42	39.60	59.71	
	W.R.	Oct. 20, '02	3	61.88	35.92	56.03	
		Oct. 24, '02	2	64.19	36.79	56.90	14.77
	E.D.	Oct. 28, '01	3	44.49	13.56	53.61	
		Nov. 18, '01	1	50.91	13.34	53.39	17.62
		Nov. 24, '02	2	70.72	33.69	53.80	
	E.R.	Oct. 22, '01	1	46.08	17.27	57.32	
		Oct. 29, '01	1	49.72	18.44	58.49	
		Nov. 9, '01	1	52.13	17.22	57.27	
		Nov. 12, '02	1	70.59	36.89	57.00	13.86
		Nov. 19, '02	3	72.82	37.11	57.22	
		Nov. 21, '02	2	73.09	36.84	56.95	
							56.85
							14.74

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. 32 H. CAMEL. pr.

	Date of Obs.	No. of Set- tings.	Zenith Distance.			Declina- tion. 1900.0.		
			Year of Obs. Obs. Jan. 0.0.		1900.0.			
Above Pole.			41°39'		41°40'	83°57'		
					Weighted Mean.			
	W.D.	Apr. 11, '02	3	71.55	76.32	55.50		
		Mar. 21, '03	3	46.73	55.91	54.69		
		Mar. 29, '03	1	48.46	55.10	53.88	54.77	43.53
	W.R.	Apr. 29, '02	2	73.93	73.35	52.53		
		Mar. 25, '03	2	44.81	52.72	51.50	52.06	40.82
	E.D.	May 16, '02	1	74.68	70.00	49.18		
		May 22, '02	3	75.50	69.66	48.84		
		Mar. 1, '03	2	36.09	51.13	49.91	49.30	38.06
	E.R.	Feb. 6, '03	3	33.63	53.55	52.33		
		Feb. 25, '03	1	38.63	54.69	53.47		
		Apr. 28, '03	2	57.68	55.08	53.86	53.21	41.97
Below Pole.						52.34	41.10	
			53°45'		53°45'			
	W.D.	Jan. 8, '02	2	96.23	72.28	33.10		
		Oct. 8, '02	4	88.81	72.17	32.99		
						33.04	38.20	
	W.R.	Oct. 24, '02	3	91.51	68.59	29.41		
		Dec. 18, '02	3	107.66	68.68	29.50		
						29.49	41.75	
	E.D.	Nov. 12, '02	3	96.45	66.94	27.76		
		Nov. 28, '02	3	101.51	67.07	27.89		
						27.82	43.42	
	E.R.	Dec. 2, '01	2	88.73	50.87	31.28		
		Nov. 19, '02	3	101.13	69.34	30.16		
					30.72	40.52		
					30.27	40.97		
						41.03		

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TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. 32 H. CAMEL.
seq.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declina- tion. 1900.0
			Year of Obs. Obs. Jan. 0.0.		1900.0		
Above Pole.			41°39'		41°40'		83°57'
					Weighted Mean.		
	W.D.	Apr. 24, '02	3	57.45	56.62	35.80	
		Apr. 28, '02	2	58.31	58.01	37.19	36.31
		Mar. 29, '03	2	30.60	37.25	36.01	25.07
	W.R.	June 3, '02	2	62.90	55.27	34.45	
		June 8, '02	3	62.08	53.93	33.11	33.78
							22.54
	E.D.	May 9, '02	1	55.61	52.46	31.64	
		May 13, '02	3	56.03	51.99	31.17	31.55
		Mar. 1, '03	1	18.16	33.21	31.97	20.31
	E.R.	May 25, '02	1	61.88	55.53	34.72	
		Feb. 24, '03	2	19.24	35.55	34.31	35.27
		Mar. 2, '03	2	22.32	37.10	35.86	24.03
		Apr. 28, '03	1	39.92	37.33	36.09	
Below Pole.			53°46'		53°45'		
	W.D.	Oct. 9, '02	2	46.76	29.76	50.58	
		Oct. 30, '02	3	54.05	29.14	49.96	50.46
		Oct. 31, '02	3	55.30	30.02	50.84	20.78
	W.R.	Oct. 7, '02	1	41.87	25.63	46.45	
		Oct. 21, '02	3	47.21	25.64	46.46	46.48
							24.76
	E.D.	Nov. 24, '02	3	57.50	24.22	45.04	45.04
							26.20
	E.R.	Nov. 21, '02	3	59.97	27.58	48.40	48.43
							22.81
						47.60	23.64
							23.31

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. CEPHEI 135 HS.

	Date of Obs.	No. of Set- tings.	Zenith Distance.			Declina- tion. 1900.0.	
			Year of Obs.		1900.0.		
			Obs.	Jan. 0.0.			
Above Pole.			40°57'		40°58'	83°15'	
					Weighted Mean.		
	W.D.	Apr. 28, '02	1	50.85	52.51	28.55	
		June 8, '02	1	61.56	53.07	29.11	17.56
		Mar. 25, '03	2	24.70	34.69	28.75	
	W.R.	Apr. 29, '02	2	48.63	49.99	26.03	
		June 3, '02	3	57.87	50.27	26.31	14.96
	E.D.	May 9, '02	2	48.49	46.89	22.93	
		May 13, '02	3	50.19	47.48	23.52	12.30
		May 16, '02	1	51.82	48.30	24.34	
	E.R.	May 25, '02	3	56.28	50.56	26.60	
		Feb. 25, '03	3	15.07	32.11	26.17	15.18
Below Pole.					26.42		
					26.24	15.00	
			54°28'		54°27'		
	W.D.	Jan. 8, '02	1	55.52	34.00	57.96	
		Oct. 8, '02	4	43.73	35.14	59.10	12.86
		Oct. 9, '02	3	42.94	33.98	57.94	
	W.R.	Dec. 6, '01	1	46.80	14.35	56.33	
		Oct. 21, '02	2	45.40	31.93	55.89	15.07
		Dec. 18, '02	2	65.39	32.29	56.25	
	E.D.	Nov. 12, '02	1	51.64	29.88	53.84	
		Nov. 21, '02	2	55.74	30.75	54.71	
		Nov. 24, '02	2	55.38	29.35	53.31	17.31
		Nov. 28, '02	2	57.24	29.89	53.85	
	E.R.	Nov. 19, '02	2	56.84	32.55	56.51	14.70
						56.54	
						56.26	14.98
							14.99

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. URS. MINORIS 57 B.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declina- tion. 1900.0.	
			Year of Obs.	Obs. Jan. o.o.	1900.0.			
Above Pole.			45°19'		45°20'		87°37'	
	W.D.	May 2, '02	5	47.94	50.48	17.65	Weighted Mean.	"
		June 13, '02	2	60.13	50.67	17.84	17.21	5.97
		Mar. 21, '03	4	23.18	35.43	16.19		
	W.R.	Apr. 29, '02	3	42.91	46.41	13.58	13.99	2.75
		June 8, '02	4	55.40	47.13	14.30		
	E.D.	May 8, '02	3	43.53	44.17	11.34		
		May 13, '02	5	45.54	44.61	11.78	11.97	0.73
		Apr. 27, '03	4	30.23	32.01	12.77		
	E.R.	May 25, '02	3	53.49	48.95	16.12		4.60
		June 26, '02	2	60.34	48.28	15.45	15.84	
							14.75	3.51
Below Pole.			50°06'		50°06'			
	W.D.	Oct. 28, '02	3	40.73	37.54	10.37		
		Oct. 30, '02	5	42.15	38.25	11.08	10.57	0.67
		Oct. 31, '02	5	41.67	37.41	10.24		
	W.R.	Jan. 22, '02	2	52.18	34.18	7.01		
		Dec. 18, '02	2	55.76	34.67	7.50	7.07	4.17
		Jan. 23, '03	3	62.29	46.71	5.95		
		Jan. 26, '03	1	64.69	48.77	8.01		
	E.D.	Nov. 21, '02	3	44.81	32.93	5.76		
		Nov. 24, '02	5	45.86	32.90	5.73	5.75	5.49
	E.R.	Nov. 19, '02	4	45.98	34.83	7.66	7.69	3.55
							7.77	3.47
								3.49

TABLE I. — ABSOLUTE DECLINATIONS FOR 1900.0. URS. MIN. 33 HS.

	Date of Obs.	No of Set- tings.	Zenith Distance.				Declination 1900.0.
			Year of Obs.		1900.0.		
			Obs.	Jan. 0.0.			
Above Pole.			40° 57'		40° 58'		83° 14'
						Weight'd Mean.	
	W.D.	June 13, '02	5	59.64	50.81	11.81	
		June 14, '02	2	59.61	50.51	11.51	11.67
							60.43
	W.R.	Apr. 29, '02	2	42.06	47.28	8.28	
		June 8, '02	3	55.44	48.04	9.04	8.72
							57.48
	E.D.	May 8, '02	2	40.73	43.07	4.07	
		May 13, '02	3	44.10	44.81	5.81	5.41
		Apr. 9, '03	3	25.85	34.71	6.23	54.17
	E.R.	May 22, '02	1	51.55	49.36	10.36	
	May 25, '02	1	52.64	49.49	10.49		
	June 26, '02	3	60.43	48.30	9.30	9.74	
	Apr. 27, '03	3	33.87	37.54	9.06	58.50	
						8.88	
						57.64 wt. 2.	
Below Pole.			54° 28'		54° 28'		
	W.D.	Oct. 28, '02	2	32.04	36.87	15.87	
		Oct. 30, '02	3	32.11	36.29	15.29	15.56
							55.68
	W.R.						
	E.D.	Nov. 24, '02	1	37.82	33.22	12.22	
		Feb. 5, '03	3	57.83	43.23	11.71	11.56
		Feb. 13, '03	3	57.72	42.45	10.93	59.68
	E.R.						
							57.68
							— .10*
							[57.58] wt. 1.
						[57.62]	

* Sine flexure.

TABLE I. — ABSOLUTE DECLINATIONS FOR 1900.0. ϵ URSÆ MINORIS.

		Date of Obs.	No. of Set- tings.	Zenith Distance.				Declination 1900.0.
				Years of Obs.		1900.0.		
				Obs.	Jan. o.o.			
Above Pole.				39° 54'	39° 55'			82° 12'
						Weighted Mean.		
	W.D.	June 4, '03	1	70.24	63.94	20.52	20.90	9.66
		June 9, '03	2	72.70	64.62	21.20		
	W.R.	June 8, '03	2	70.11	62.37	18.95	19.13	7.89
		June 14, '03	1	72.20	62.67	19.25		
	E.D.	May 8, '02	1	59.71	63.71	14.75	15.10	3.86
		May 22, '02	3	64.79	64.32	15.36		
	E.R.	May 21, '02	1	68.82	68.70	19.74	19.29	8.05
		May 11, '03	2	61.15	62.47	19.05		
	Apr. 27, '03	2	57.02	62.48	19.06			
						18.60	7.36 wt. 3	
Below Pole.				55° 31'	55° 31'			
	W.D.	Jan. 8, '02	1	21.75	16.43	5.39	5.18	6.06
		Jan. 23, '03	1	29.01	21.54	4.96		
	W.R.							+2.39*
	E.D.							8.45
	E.R.							
							[8.45] wt. 1	
							[7.63]	

* Cos flexure, sine flexure and absolute term.

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. δ URSÆ MINORIS

	Date of Obs.	No. of Set- tings.	Zenith Distance.			Declination. 1900.0.	
			Year of Obs.		1900.0.		
			Obs.	Jan. 0.0.			
Above Pole.			44° 19'		44° 19'	86° 36'	
					Weight'd Mean.		
	W.D.	June 5, '02	3	66.29	63.13	62.31	
		June 9, '02	5	67.62	63.22	62.40	
		June 4, '03	1	66.46	62.65	61.46	62.00
		June 8, '03	2	68.02	62.80	61.61	50.76
	W.R.	June 4, '03	2	63.93	60.12	58.93	
		June 8, '03	2	65.14	59.92	58.73	58.87
	E.D.	June 16, '02	3	64.06	57.42	56.60	
		June 17, '02	3	63.66	56.65	55.83	56.11
		May 11, '03	1	53.78	56.99	55.80	44.87
	E.R.	May 22, '02	1	59.27	60.49	59.67	
	Apr. 27, '03	3	54.07	60.65	59.46	59.59	
					59.14	48.35	
						47.90	
Below Pole.			51° 06'		51° 06'		
	W.D.	Jan. 16, '02	3	24.40	23.74	24.56	24.56
							46.68
	W.R.	Jan. 22, '02	3	24.37	21.96	22.78	
		Feb. 13, '02	3	29.61	21.35	22.17	22.51
							48.73
	E.D.	Mar. 4, '02	3	31.65	20.43	21.25	
		Mar. 5, '02	1	31.03	19.68	20.50	
		Mar. 6, '02	1	31.90	20.42	21.24	20.97
		Feb. 13, '03	4	26.43	19.64	20.83	50.27
	E.R.	Feb. 24, '03	3	31.40	22.63	23.82	
		Feb. 25, '03	2	31.46	22.49	23.68	23.88
		Mar. 2, '03	1	32.58	22.92	24.11	47.36
						22.98	48.26
							48.08

TABLE I. — ABSOLUTE DECLINATIONS FOR 1900.0. λ URSÆ MINORIS.

	Date of Obs.	No. of Set- tings.	Zenith Distance.			Delineation 1900.0.	
			Year of Obs. Obs.	Jan. o.o.	1900.0.		
Above Pole.			46° 42'		46° 42'	88° 59'	
					Weight'd Mean.		
	W.D.	Sept. 22, '02	3	74.63	43.59	29.66	
		Oct. 7, '02	1	75.51	42.90	28.97	
		Oct. 8, '02	4	77.83	45.15	31.22	30.35
		Oct. 9, '02	3	77.78	45.04	31.11	
	W.R.	Sept. 26, '02	2	73.36	41.78	27.85	
		June 8, '03	2	50.22	48.44	27.69	27.69
		June 9, '03	2	50.25	48.15	27.40	16.45
	E.D.	June 26, '02	2	45.31	38.38	24.45	
		June 25, '03	2	51.44	44.35	23.60	24.02
	E.R.	June 25, '03	2	55.06	47.97	27.22	27.26
Below Pole.						27.33	16.02
							16.09
			48° 43'		48° 43'		
	W.D.	Feb. 15, '02	3	45.99	44.18	58.11	
		Feb. 22, '02	7	47.78	44.10	58.03	
		Feb. 24, '02	5	48.60	44.40	58.33	58.22
		Mar. 29, '02	3	53.98	44.99	58.92	13.02
		Mar. 21, '03	2	44.62	36.90	57.65	
	W.R.	Mar. 25, '03	3	42.36	34.16	54.91	54.94
		Mar. 24, '02	1	47.65	38.88	52.81	16.30
	E.D.	Mar. 25, '02	9	47.96	39.11	53.04	
		Feb. 6, '03	3	30.42	31.94	52.69	52.80
		Feb. 26, '03	3	35.86	31.91	52.66	18.44
	E.R.	Mar. 19, '02	1	49.44	41.30	55.23	
		Mar. 27, '02	3	51.08	42.15	56.08	
		Feb. 21, '03	3	37.37	34.76	55.51	55.51
		Feb. 24, '03	3	37.66	34.26	55.01	15.73
						55.37	15.87
							15.98

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. CEPHEI 3 HS.

		Date of Obs.	No. of Set- tings.	Zenith Distance.				Declination. 1900.0.
				Year of Obs.		1900.0.		
				Obs.	Jan. 0.0.			
Above Pole.				42°06'		42°05'		84°22'
						Weight'd Mean.		
	W.D.	June 5, '02	3	12.41	13.98	51.94		
		June 27, '02	3	19.09	14.15	52.11	52.02	40.78
	W.R.	Oct. 18, '02	1	48.67	12.19	50.15		
		Oct. 21, '02	1	48.47	11.73	49.69	49.93	38.69
		Oct. 24, '02	1	48.81	11.86	49.82		
	E.D.	June 17, '02	3	10.20	8.40	46.36	46.26	35.02
		Sept. 15, '02	3	38.99	8.21	46.17		
	E.R.	June 26, '02	1	16.39	11.77	49.73	49.77	38.53
						49.50	38.26	
Below Pole.				53°20'		53°20'		
						"		
	W.D.	Feb. 22, '02	2	12.74	13.07	35.11		
		Mar. 29, '02	3	20.88	13.69	35.73	35.44	35.80
	W.R.	Feb. 15, '02	2	8.58	11.01	33.05		
		Apr. 10, '02	3	19.71	11.49	33.53	33.33	37.91
	E.D.	Mar. 4, '02	2	11.03	8.63	30.67		
		Mar. 5, '02	3	11.09	8.44	30.48	30.57	40.67
	E.R.	Mar. 19, '02	2	17.56	11.89	33.93	33.82	37.42
		Mar. 8, '03	3	3.88	0.62	33.66		
							33.29	37.95
								38.10

TABLE I. — ABSOLUTE DECLINATIONS FOR 1900.0. 76 DRACONIS.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declination 1900.0.	
			Year of Obs.		1900.00.			
			Obs.	Jan. 0.0.				
Above Pole.			39° 53'		39° 52'		82° 09'	
					Weight'd Mean.			
	W.D.	Sept. 26, '02	3	54.29	20.96	53.87		
		Oct. 6, '02	1	56.11	20.58	53.49	42.54	
		Oct. 20, '02	1	58.95	21.03	53.94		
	W.R.	Oct. 10, '01	2	40.99	4.78	51.23		
		Oct. 7, '02	1	53.73	17.97	50.88	39.87	
	E.D.	Oct. 28, '01	2	39.80	1.00	47.45		
		Sept. 16, '02	1	46.58	16.02	48.93	36.87	
	E.R.	Oct. 29, '01	2	46.45	7.51	53.96		
	Oct. 30, '01	1	44.84	5.78	52.23	41.99		
Below Pole.						51.56	40.32	
				55° 32'		55° 33'		
	W.D.	Apr. 11, '02	3	73.42	66.18	33.27		
		Apr. 4, '03	2	59.48	52.72	33.34	37.93	
	W.R.	Apr. 10, '02	3	71.56	64.36	31.45		
		Mar. 21, '03	1	54.04	49.72	30.34	40.23	
	E.D.	Apr. 7, '03	1	54.50	47.31	27.93		
		Apr. 9, '03	2	55.50	48.03	28.65	42.91	
	E.R.	Feb. 5, '03	1	41.69	50.11	30.73		
		Feb. 6, '03	1	41.87	50.00	30.62	40.53	
						30.84	40.40	
							40.36	

TABLE I. — ABSOLUTE DECLINATIONS FOR 1900.0. CEPHEI
GR. 3548.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declina- tion. 1900.0.
			Year of Obs. Obs. / Jan. o.o.		1900.0.		
Above Pole.			44° 20'		44° 20'		86° 37'
					Weighted Mean.		
	W.D.	Sept. 22, '02	5	100.38	69.58	38.88	
		Oct. 8, '02	5	105.23	70.14	39.44	27.92
	W.R.	Oct. 10, '01	2	86.79	50.91	35.56	
		Sept. 26, '02	3	98.42	66.46	35.76	24.47
	E.D.	Oct. 23, '01	3	86.57	48.05	32.70	
		Oct. 28, '01	3	87.28	47.97	32.62	21.80
		Nov. 21, '02	3	105.40	64.51	33.81	
	E.R.	Oct. 24, '01	3	90.39	51.70	36.35	
Below Pole.		Oct. 30, '01	1	91.08	51.47	36.12	24.98
		June 26, '02	3	67.97	66.76	36.06	
						36.03	24.79
				51° 04'		51° 05'	
	W.D.	Mar. 29, '02	3	81.79	78.29	48.99	
		Apr. 11, '02	3	84.44	78.76	49.46	22.02
	W.R.	Apr. 10, '02	3	81.82	76.27	46.97	
		Apr. 15, '02	2	82.50	76.34	47.04	24.21
	E.D.	Mar. 4, '02	1	69.97	72.85	43.55	
		Mar. 5, '02	3	70.48	73.06	43.76	27.53
		Feb. 13, '03	4	49.35	57.73	43.76	
	E.R.	Mar. 19, '02	2	77.72	76.47	47.17	
		Mar. 25, '02	2	79.60	76.95	47.65	24.20
		Feb. 24, '03	3	55.44	60.25	46.28	
						46.75	24.49
							24.64

TABLE I. — ABSOLUTE DECLINATIONS FOR 1900.0. 32
H. CEPHEI.

	Date of Obs.	No. of Set- tings.	Zenith Distance.			Declina- tion 1900.0.	
			Year of Obs.		1900.0.		
			Obs.	Jan. o.o.			
Above Pole.			43° 19'		43° 19'	85° 36'	
					Weight'd Mean.		
	W.D.	Sept. 22, '02	3	94.55	67.13	30.60	
		Oct. 1, '02	5	98.20	67.72	31.19	19.67
	W.R.	Oct. 10, '01	2	81.06	46.73	28.46	
		Oct. 24, '02	3	102.48	65.32	28.79	17.43
	E.D.	Oct. 28, '01	3	83.21	44.05	25.78	
		June 26, '02	2	59.28	61.31	24.78	13.94
		Sept. 15, '02	1	86.32	61.36	24.83	
	E.R.	Oct. 30, '01	3	87.66	48.05	29.78	
Below Pole.		June 26, '02	2	63.63	65.66	29.13	18.27
						28.57	17.33
				52° 05'		52° 06'	
	W.D.	Mar. 29, '02	3	80.26	80.09	56.62	
		Apr. 11, '02	3	82.80	79.62	56.15	14.99
		Apr. 28, '02	3	85.31	79.45	55.98	
	W.R.	Apr. 10, '02	3	80.21	77.23	53.76	
		Apr. 24, '02	3	82.74	77.37	53.90	17.38
	E.D.	Mar. 24, '02	3	73.59	74.76	51.29	
		May 12, '02	2	81.80	74.99	51.52	19.89
		Feb. 13, '03	4	44.22	56.46	51.25	
	E.R.	Mar. 19, '02	3	75.63	78.23	54.76	
		Mar. 21, '02	2	76.61	78.63	55.16	16.72
		Feb. 21, '03	2	49.09	58.73	53.52	
						54.00	17.24
							17.29

TABLE I. — ABSOLUTE DECLINATIONS FOR 1900.0.
36 H. CEPHEI.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declination. 1900.0.
			Year of Obs.		1900.0.	Weight'd Mean.	
			Obs.	Jan. 0.0.			
Above Pole.	W.D.	Oct. 4, '01	3	43.06	12.51	53.24	42.45
		Sept. 22, '02	3	57.57	32.69	54.14	
	W.R.	Oct. 5, '01	1	41.51	10.61	51.34	40.30
		Oct. 10, '01	2	43.09	10.51	51.24	
		Dec. 6, '01	1	55.30	10.68	51.41	
		Oct. 21, '02	1	64.62	29.99	51.44	
	E.D.	Oct. 24, '02	3	65.99	30.52	51.97	37.40
		Oct. 23, '01	3	44.68	8.07	48.80	
	E.R.	Oct. 25, '01	3	44.93	7.76	48.49	40.72
		Oct. 22, '01	1	48.85	12.53	53.26	
		Oct. 24, '01	3	47.60	10.71	51.44	
		Nov. 26, '01	1	55.24	11.52	52.25	
		Nov. 30, '01	3	54.62	10.46	51.19	
						51.46	40.22
	Below Pole.	W.D.			53° 53'	53° 54'	
Mar. 29, '02			1	52.12	53.62	32.17	
Apr. 28, '02			3	60.65	55.51	34.06	
W.R.		May 2, '02	3	61.50	55.82	34.37	40.49
		Apr. 10, '02	3	53.72	52.10	30.65	
		Apr. 15, '02	3	55.00	52.24	30.79	
E.D.		May 12, '02	3	57.60	50.94	29.49	41.92
		May 16, '02	2	57.17	50.29	28.84	
		May 17, '02	3	57.95	51.02	29.57	
E.R.		Feb. 13, '03	3	20.33	34.13	31.95	39.41
		Feb. 24, '03	3	23.49	33.83	31.65	
						31.83	39.85
						31.39	
							40.04

TABLE I.—ABSOLUTE DECLINATIONS FOR 1900.0. 39 H. CEPHEI.

	Date of Obs.	No. of Set- tings.	Zenith Distance.				Declina- tion 1900.0.
			Year of Obs.		1900.0.		
			Obs.	Jan. 0.0.			
Above Pole.			44° 28'		44° 28'		86° 45'
					"	Weight'd Mean.	
	W.D.	Oct. 4, '01	3	82.65	55.14	35.27	
		Dec. 11, '01	1	100.12	55.47	35.60	35.39
		Sept. 22, '02	3	96.41	75.07	35.33	24.15
	W.R.	Oct. 5, '01	2	80.01	52.13	32.26	
		Oct. 7, '01	1	81.27	52.67	32.80	32.28
		Dec. 6, '01	3	95.83	51.70	31.83	21.04
	E.D.	Oct. 23, '01	3	83.89	49.80	29.93	
		Oct. 25, '01	3	83.57	48.84	28.97	29.45
		Oct. 22, '01	2	87.12	53.34	33.47	
		Oct. 24, '01	1	87.26	52.84	32.97	
	E.R.	Nov. 9, '01	2	92.14	53.11	33.24	32.92
		Nov. 30, '01	1	95.37	52.02	32.15	21.68
		Nov. 21, '02	3	112.26	72.20	32.46	
Below Pole.						32.51	21.27
			50° 56'		50° 57'		
	W.D.	Apr. 11, '02	1	73.35	73.31	53.05	
		Apr. 28, '02	3	77.65	73.71	53.45	53.09
		May 2, '02	1	77.54	72.88	52.62	18.15
	W.R.	Apr. 10, '02	3	69.70	69.92	49.66	
		Apr. 24, '02	2	73.05	69.91	49.65	49.69
		May 12, '02	3	74.15	68.05	47.79	
	E.D.	May 16, '02	5	74.95	68.44	48.18	47.94
		May 24, '02	2	75.18	68.10	47.84	23.30
		May 9, '02	3	75.89	70.16	49.90	
		May 17, '02	1	77.79	71.18	50.92	
	E.R.	Feb. 6, '03	4	33.10	50.57	50.19	50.38
		Feb. 24, '03	4	38.59	50.93	50.55	20.86
						50.27	20.97
							21.12

TABLE II. — DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
 CEPHEI BR. 256, 6.9 MAG., R.A. $2^h 1^m 25^s$.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.0.	Differ- ential Flexure.	δ —1900.0.	
Above Pole.			83°05'	83°05'		83°05'	
	Oct. 8, '02	λ Urs. min.	63.42	28.94	— .13	28.81	Mean.
	Oct. 8, '02	Polaris.	63.65	29.17	— .13	29.04	
	Oct. 28, '02	Polaris.	65.07	30.59	— .13	30.46	29.21
	Oct. 28, '02	Gr. 750.	62.64	28.16	— .05	28.11	
	Oct. 29, '02	Polaris.	64.22	29.74	— .13	29.61	
	Jan. 22, '02	Gr. 750.	64.97	30.49	— .04	30.45	
	Jan. 22, '02	δ Urs. min. s.p.	65.28	30.80	— .21	30.59	
	Oct. 21, '02	30 H. Camel. s.p.	63.36	28.88	— .29	28.59	
	Oct. 21, '02	Polaris.	64.23	29.75	— .11	29.64	29.94
	Oct. 24, '02	1 H. Draconis s.p.	65.27	30.79	— .32	30.47	
	Oct. 24, '02	Polaris.	64.42	29.94	— .11	29.83	
	Jan. 26, '03	Gr. 750.	81.74	30.02	— .04	29.98	
	Nov. 24, '02	Polaris.	63.93	29.45	+ .11	29.56	
	Nov. 24, '02	Gr. 750.	62.71	28.23	+ .04	28.27	29.01
	Nov. 28, '02	Polaris.	63.58	29.10	+ .11	29.21	
	Dec. 2, '01	Polaris.	47.35	30.11	+ .12	30.23	
	Nov. 19, '02	Polaris.	64.86	30.38	+ .12	30.50	30.32
	Nov. 21, '02	Polaris.	65.25	30.77	+ .12	30.89	
	Nov. 21, '02	Gr. 750.	64.11	29.63	+ .04	29.67	
Below Pole.	June 8, '02	Gr. 750. s.p.	64.05	29.57	— .05	29.52	
	June 8, '02	Polaris. s.p.	66.91	32.43	— .14	32.29	
	Mar. 21, '03	λ Urs. min. s.p.	83.85	32.13	— .14	31.99	31.44
	Mar. 21, '03	30 H. Camel. s.p.	83.91	32.19	— .32	31.87	
	Mar. 21, '03	Polaris. s.p.	83.40	31.68	— .14	31.54	
	Apr. 29, '02	Polaris. s.p.	64.97	30.49	— .13	30.36	
	Apr. 29, '02	Gr. 750. s.p.	64.97	30.49	— .05	30.44	
	June 3, '02	Polaris. s.p.	64.65	30.17	— .13	30.04	30.34
	June 3, '02	Gr. 750. s.p.	65.07	30.59	— .05	30.54	
	May 9, '02	Polaris. s.p.	65.10	30.62	+ .12	30.74	
	May 9, '02	43 H. Cephei. s.p.	66.56	32.08	+ .06	32.14	
	May 13, '02	Polaris. s.p.	64.92	30.44	+ .12	30.56	30.98
	May 16, '02	Polaris. s.p.	65.05	30.57	+ .12	30.69	
	May 16, '02	43 H. Cephei. s.p.	65.20	30.72	+ .06	30.78	
	May 25, '02	Polaris. s.p.	64.63	30.15	+ .14	30.29	
	Feb. 24, '03	δ Urs. min. s.p.	82.49	30.77	+ .09	30.86	
	Feb. 24, '03	λ Urs. min. s.p.	81.37	29.65	+ .15	29.80	30.51
	Feb. 24, '03	30 H. Camelop. s.p.	81.79	30.07	+ .32	30.39	
	Feb. 24, '03	Polaris. s.p.	82.78	31.06	+ .14	31.20	
						30.22	

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
CEPHEI 147 HS., 5.9 MAG., R.A. $3^h 8^m 35^s$.

	Date.	Zero Star.	Year of Obs. Jan. o o.	1900.0.	Diff. Flexure.	δ —1900.0.	
Above Pole.			84°33'	84°33'		84°33'	
	Dec. 11, '01	43 H. Cephei	40.07	26.56	— .03	26.53	Mean.
	Jan. 8, '02	Polaris	53.69	26.69	— .10	26.59	26.91
	Jan. 8, '02	ϵ Urs. min. s.p.	54.94	27.94	— .32	27.62	
	W.R. Dec. 5, '01	43 H. Cephei	40.20	26.69	— .02	26.67	26.67
	Nov. 12, '02	Polaris	54.11	27.11	+ .08	27.19	
	E.D. Nov. 28, '02	Polaris	53.14	26.14	+ .08	26.22	26.51
	Feb. 5, '03	Polaris	67.29	26.81	+ .08	26.89	
	Feb. 5, '03	Gr. 750	66.20	25.72	+ .01	25.73	
	E.R.						
Below Pole.	W.D. June 14, '02	Gr. 750 s.p.	53.46	26.46	— .02	26.44	26.34
	Mar. 29, '03	Polaris s.p.	66.85	26.37	— .11	26.26	
	Mar. 29, '03	Gr. 750 s.p.	66.82	26.34	— .02	26.32	
	June 3, '02	Polaris s.p.	53.16	26.16	— .09	26.07	
	June 3, '02	Gr. 750 s.p.	53.58	26.58	— .01	26.57	
	W.R. Mar. 25, '03	λ Urs. min. s.p.	65.99	25.51	— .09	25.42	26.08
	Mar. 25, '03	30 H. Camel. s.p.	65.76	25.28	— .25	25.03	
	Mar. 25, '03	Polaris s.p.	66.71	26.23	— .09	26.14	
	Mar. 28, '03	30 H. Camel. s.p.	66.79	26.31	— .25	26.06	
	Mar. 28, '03	Gr. 750 s.p.	67.76	27.28	— .01	27.27	
	May 9, '02	Polaris s.p.	53.07	26.07	+ .09	26.16	
	May 9, '02	43 H. Cephei s.p.	54.53	27.53	+ .03	27.56	
	May 16, '02	Polaris s.p.	53.94	26.94	+ .09	27.03	
	E.D. May 16, '02	43 H. Cephei s.p.	54.09	27.09	+ .03	27.12	27.05
	Apr. 9, '03	76 Draconis s.p.	67.75	27.27	— .05	27.22	
	Apr. 9, '03	1 H. Draconis. s.p.	67.38	26.90	+ .27	27.17	
	Apr. 9, '03	30 H. Camel. s.p.	67.35	26.87	+ .25	27.12	
	Apr. 9, '03	Gr. 750 s.p.	67.45	26.97	+ .02	26.99	
	May 21, '02	Gr. 750 s.p.	53.02	26.02	+ .02	26.04	
	May 21, '02	ϵ Urs. min. s.p.	54.14	27.14	+ .30	27.44	
	May 22, '02	δ Urs. min. s.p.	54.21	27.21	+ .21	27.42	26.55
	E.R. June 26, '02	Gr. 750 s.p.	53.47	26.47	+ .02	26.49	
	June 26, '02	51 H. Cephei s.p.	52.93	25.93	+ .06	25.99	
	Apr. 28, '03	Polaris s.p.	66.31	25.83	+ .10	25.93	
						26.59	

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
 CEPHEI 149 HS., 5.9 MAG., R.A. 3^h 33^m 55^s.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.o.	Diff. Flexure.	δ —1900.o.
Above Pole.			86° 20'	86° 19'		86° 19'
						Mean.
	W.D.	Dec. 11, '01 43 H. Cephei	8.53	56.67	+ .01	56.68
		Jan. 8, '02 Polaris	20.13	56.44	— .06	56.38
		Jan. 8, '02 ϵ Urs. min. s.p.	21.38	57.69	— .28	57.41
	W.R.	Jan. 22, '02 Gr. 750	21.06	57.37	+ .02	57.39
		Jan. 22, '02 δ Urs. min. s.p.	21.37	57.68	— .15	57.53
		Feb. 15, '02 Gr. 750	19.01	55.32	+ .02	55.34
		Feb. 15, '02 51 H. Cephei	19.05	55.36	— .02	55.34
	E.D.	Nov. 24, '02 Polaris	22.77	59.08	+ .05	59.13
		Nov. 24, '02 Gr. 750	21.55	57.86	— .02	57.84
						[58.48]*
	E.R.	Nov. 19, '02 Polaris	20.75	57.06	+ .05	57.11
		Nov. 21, '02 Polaris	20.96	57.27	+ .05	57.32
		Nov. 21, '02 Gr. 750	19.82	56.13	— .03	56.10
Below Pole.						
	W.D.	June 8, '02 Polaris s.p.	21.48	57.79	— .06	57.73
		June 8, '02 Gr. 750 s.p.	18.62	54.93	+ .03	54.96
		June 13, '02 Gr. 750 s.p.	19.13	55.44	+ .03	55.47
		June 13, '02 51 H. Cephei s.p.	21.25	57.56	— .02	57.54
		June 14, '02 Gr. 750 s.p.	19.83	56.14	+ .03	56.17
	W.R.	Apr. 29, '02 Gr. 750 s.p.	20.85	57.16	+ .03	57.19
		Apr. 29, '02 Polaris s.p.	20.85	57.16	— .05	57.11
		June 3, '02 Polaris s.p.	20.47	56.78	— .05	56.73
		June 3, '02 Gr. 750 s.p.	20.89	57.20	+ .03	57.23
	E.D.	May 8, '02 Gr. 750 s.p.	20.37	56.68	— .02	56.66
		May 8, '02 ϵ Urs. min.	21.41	57.72	+ .23	57.95
		May 13, '02 Polaris s.p.	21.53	57.84	+ .05	57.89
		May 25, '02 Gr. 750 s.p.	21.14	57.45	— .02	57.43
	E.R.	May 21, '02 Gr. 750 s.p.	20.15	56.46	— .02	56.44
		May 21, '02 ϵ Urs. min.	21.27	57.58	+ .26	57.84
		May 22, '02 δ Urs. min.	20.36	56.67	+ .17	56.84
						56.86

* This value was discarded in obtaining the final mean. Probably there is an error in the original record.

TABLE II. — DECLINATIONS FOR 1000.0 FROM COMPARISON WITH ZERO STARS.

CEPHEI 157 HS., 6.3 MAG., R.A. $4^h 56^m 18^s$.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.o.	Diff. Flexure.	δ —1900.o.	
Above Pole.			85° 49'	85° 49'		85° 49'	
	W.D. Feb. 22, '02	λ Urs. min. s.p.	58.24	47.45	— .12	47.33	Mean.
	Feb. 24, '02	λ Urs. min. s.p.	57.55	46.76	— .12	46.64	46.98
	W.R. Feb. 13, '02	δ Urs. min. s.p.	58.01	47.22	— .16	47.06	
	Feb. 15, '02	Gr. 750	56.85	46.06	+ .01	46.07	46.40
	Feb. 15, '02	51 H. Cephei	56.89	46.10	— .03	46.07	
	E.D. Mar. 5, '02	δ Urs. min. s.p.	57.80	47.01	+ .15	47.16	
	Mar. 5, '02	51 H. Cephei	57.45	46.66	+ .03	46.69	
	Mar. 6, '02	δ Urs. min. s.p.	56.34	45.55	+ .15	45.70	46.31*
	Feb. 5, '03	Polaris	62.66	46.52	+ .06	46.58	
	Feb. 5, '03	Gr. 750	61.57	45.43	— .01	45.42	
	E.R. Feb. 24, '03	δ Urs. min. s.p.	61.90	45.76	+ .17	45.93	
	Feb. 24, '03	λ Urs. min. s.p.	62.80	46.66	+ .11	46.77	
	Feb. 24, '03	30 H. Camel	62.60	46.46	— .06	46.40	46.01
	Feb. 24, '03	Polaris s.p.	61.61	45.47	+ .12	45.59	
	Feb. 26, '03	51 H. Cephei	61.47	45.33	+ .03	45.36	
Below Pole.	W.D. June 9, '02	δ Urs. min.	58.01	47.22	— .17	47.05	
	June 13, '02	Gr. 750 s.p.	55.97	45.18	+ .02	45.20	46.20
	June 13, '02	51 H. Cephei s.p.	58.09	47.30	— .03	47.27	
	Mar. 29, '03	Polaris s.p.	61.93	45.79	— .07	45.72	
	Mar. 29, '03	Gr. 750 s.p.	61.90	45.76	+ .02	45.78	
	W.R. June 3, '02	Polaris s.p.	56.99	46.20	— .06	46.14	
	June 3, '02	Gr. 750 s.p.	57.41	46.62	+ .02	46.64	46.21
	June 5, '02	Gr. 750 s.p.	57.19	46.40	+ .02	46.42	
	Mar. 28, '03	30 H. Camel.	61.67	45.53	— .22	45.31	
	Mar. 28, '03	Gr. 750 s.p.	62.64	46.50	+ .02	46.52	
	E.D. June 16, '02	δ Urs. min.	56.97	46.18	+ .17	46.35	
	June 17, '02	δ Urs. min.	58.06	47.27	+ .16	47.43	46.92
	June 17, '02	51 H. Cephei s.p.	57.26	46.47	+ .03	46.50	
	June 17, '02	1 H. Draconis s.p.	58.26	47.47	— .09	47.38	
	E.R. June 24, '02	Gr. 750 s.p.	58.33	47.54	— .01	47.53	46.83
	June 26, '02	Gr. 750 s.p.	57.53	46.74	— .01	46.73	
	June 26, '02	51 H. Cephei s.p.	56.99	46.20	+ .03	46.23	
							46.48

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
 CEPHEI 158 HS., 6.3 MAG., R.A. $5^h 29^m 55^s$.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.0	Diff. Flexure.	δ —1900.0
			85°08'	85°08'		85°08'
Above Pole.	W.D. Jan. 16, '02	δ Urs. min.	s.p. 57.21	51.99	— .19	51.80 Mean.
	Feb. 15, '02	λ Urs. min.	s.p. 55.11	49.89	— .13	49.76
	Feb. 22, '02	λ Urs. min.	s.p. 56.34	51.12	— .13	50.99 $\frac{1}{4}$
	W.R. Jan. 22, '02	δ Urs. min.	s.p. 54.96	49.74	— .17	49.57
	Jan. 22, '02	Gr. 750	54.65	49.43	.00	49.43
	Feb. 13, '02	δ Urs. min.	s.p. 55.39	50.17	— .17	50.00
	E.D. Mar. 4, '02	δ Urs. min.	s.p. 54.68	49.46	+ .16	49.62
	Mar. 5, '02	δ Urs. min.	s.p. 56.25	51.03	+ .16	51.19
	Mar. 5, '02	51 H. Cephei	55.90	50.68	+ .04	50.72
	Mar. 6, '02	51 H. Cephei	54.22	49.00	+ .05	49.05
	Feb. 24, '03	δ Urs. min.	s.p. 57.73	49.95	+ .19	50.14
	Feb. 24, '03	λ Urs. min.	s.p. 58.63	50.85	+ .13	50.98
	Feb. 24, '03	30 H. Camel.	58.43	50.65	— .04	50.61
	Feb. 24, '03	Polaris	s.p. 57.44	49.66	+ .14	49.80
	E.R. Feb. 25, '03	51 H. Cephei	56.69	48.91	+ .05	48.96
	Feb. 25, '03	δ Urs. min.	s.p. 58.16	50.38	+ .19	50.57
	Feb. 25, '03	Polaris	s.p. 57.51	49.73	+ .14	49.87
	Mar. 2, '03	δ Urs. min.	s.p. 57.75	49.97	+ .19	50.16
	Mar. 2, '03	51 H. Cephei	56.64	48.86	+ .04	48.90
	Mar. 2, '03	1 H. Draconis	57.82	50.04	— .07	49.97
	Mar. 2, '03	Polaris	s.p. 57.59	49.81	+ .14	49.95
Below Pole.	W.D. June 5, '02	δ Urs. min.	54.97	49.75	— .19	49.56
	June 9, '02	δ Urs. min.	56.23	51.01	— .19	50.82
	Mar. 29, '03	Polaris	s.p. 57.64	49.86	— .09	49.77
	Mar. 29, '03	Gr. 750	s.p. 57.61	49.83	.00	49.83
	W.R. June 3, '02	Polaris	s.p. 56.52	51.30	— .10	51.20
	June 3, '02	Gr. 750	s.p. 56.94	51.72	— .02	51.70
	Mar. 28, '03	30 H. Camel.	56.90	49.12	— .24	48.88
	Mar. 28, '03	Gr. 750	s.p. 57.87	50.09	.00	50.09
	E.D. June 16, '02	δ Urs. min.	55.81	50.59	+ .18	50.77
	June 17, '02	δ Urs. min.	55.83	50.61	+ .18	50.79
	June 17, '02	51 H. Cephei	s.p. 55.03	49.81	+ .05	49.86
	June 17, '02	1 H. Draconis	s.p. 56.03	50.81	— .07	50.74
	E.R. May 21, '02	Gr. 750	s.p. 53.77	48.55	.00	48.55
	May 21, '02	ϵ Urs. min.	54.89	49.67	+ .28	49.95
	May 22, '02	δ Urs. min.	55.29	50.07	+ .19	50.26
						50.19

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
CEPHEI 109 HS., 6.2 MAG., R.A. $7^h 53^m 2^s$.

	Date.	Zero Star.	Year of Obs. Jan. 0.0.	1900.0.	Diff. Flexure.	δ —1900.0.
Above Pole.			84° 20'	84° 20'		84° 20'
	Mar. 29, '02	51 H. Cephei	30.59	49.62	— .06	49.56 Mean.
	Mar. 29, '02	λ Urs. min. s.p.	31.02	50.05	— .15	49.90
	Apr. 11, '02	76 Draconis s.p.	32.14	51.17	— .32	50.85 49.92
	Apr. 11, '02	Polaris s.p.	30.48	49.51	— .15	49.36
	Feb. 15, '02	Gr. 750	28.98	48.01	— .01	48.00
	Feb. 15, '02	51 H. Cephei	29.02	48.05	— .05	48.00
	Mar. 21, '03	76 Draconis sp.	21.56	50.14	— .28	49.86 48.78
	Mar. 21, '03	1 H. Draconis	20.63	49.21	+ .05	49.26
	Mar. 4, '02	δ Urs. min. s.p.	31.09	50.12	+ .18	50.30
	Mar. 5, '02	δ Urs. min. s.p.	30.29	49.32	+ .18	49.50 49.61
	Mar. 5, '02	51 H. Cephei	29.94	48.97	+ .06	49.03
	Mar. 19, '02	51 H. Cephei	29.89	48.92	+ .07	48.99
	Mar. 19, '02	λ Urs. min. s.p.	32.14	51.17	+ .15	51.32 50.47
	Mar. 27, '02	λ Urs. min. s.p.	31.93	50.96	+ .15	51.11
Below Pole.	June 5, '02	δ Urs. min.	32.40	51.43	— .21	51.22
	Oct. 6, '02	76 Draconis	30.53	49.56	— .31	49.25 49.78
	Oct. 6, '02	30 H. Camel. s.p.	29.80	48.83	+ .03	48.86
	Oct. 7, '02	76 Draconis	31.21	50.24	— .27	49.97
	Oct. 18, '02	1 H. Draconis s.p.	30.65	49.68	+ .06	49.74
	Oct. 20, '02	Polaris	29.67	48.70	— .15	48.55 50.04
	June 9, '03	51 H. Cephei s.p.	22.30	50.88	— .06	50.82
	June 9, '03	λ Urs. min.	22.69	51.27	— .14	51.13
	June 17, '02	δ Urs. min.	30.69	49.72	+ .19	49.91
	June 17, '02	51 H. Cephei s.p.	29.89	48.92	+ .06	48.98 49.46
	June 17, '02	1 H. Draconis s.p.	30.89	49.92	— .06	49.86
	Sept. 15, '02	1 H. Draconis s.p.	30.14	49.17	— .07	49.10
	June 26, '02	Gr. 750 s.p.	29.67	48.70	+ .02	48.72
	June 26, '02	51 H. Cephei s.p.	29.13	48.16	+ .06	48.22 48.47
						49.57

TABLE II. — DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
 URSÆ MINORIS 4B, 7.2 MAG., R.A. 7^h 58^m 3^s.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.0.	Diff. Flexure.	δ —1900.0.	
			88°55'	88°55'		88°55'	
Above Pole.	Mar. 29,'02	51 H. Cephei	39.54	59.42	+ .04	59.46	Mean.
	Mar. 29,'02	λ Urs. min. s.p.	39.97	59.85	— .05	59.80	59.29
	Mar. 25,'03	51 H. Cephei	28.20	58.14	+ .04	58.18	
	Mar. 25,'03	Polaris s.p.	29.84	59.78	— .05	59.73	
	Mar. 21,'03	76 Draconis s.p.	30.17	60.11	— .20	59.91	59.60
	Mar. 21,'03	1 H. Draconis	29.24	59.18	+ .13	59.31	
	Mar. 25,'03	λ Urs. min. s.p.	29.81	59.75	— .05	59.70	
	Mar. 25,'03	30 H. Camel.	30.04	59.98	+ .11	60.09	
	Mar. 25,'03	Polaris s.p.	29.09	59.03	— .05	58.98	
	Mar. 24,'02	51 H. Cephei	38.85	58.73	— .03	58.70	59.07
	Mar. 24,'02	λ Urs. min. s.p.	38.47	58.35	+ .04	58.39	
	Mar. 25,'02	λ Urs. min. s.p.	39.44	59.32	+ .04	59.36	
	Feb. 5,'03	Polaris	29.72	59.66	.00	59.66	
	Feb. 5,'03	Gr. 750	28.63	58.57	— .07	58.50	
	Feb. 6,'03	51 H. Cephei	29.32	59.26	— .03	59.23	
	Feb. 6,'03	λ Urs. min. s.p.	29.67	59.61	+ .04	59.65	
	Feb. 5,'03	76 Draconis s.p.	30.71	60.65	+ .21	60.86	60.01
	Feb. 5,'03	1 H. Draconis	29.45	59.39	— .16	59.23	
	Feb. 24,'03	δ Urs. min. s.p.	29.71	59.65	+ .10	59.75	
	Feb. 24,'03	λ Urs. min. s.p.	30.61	60.55	+ .04	60.59	
	Feb. 24,'03	30 H. Camel.	30.41	60.35	— .13	60.22	
	Feb. 24,'03	Polaris s.p.	29.42	59.36	+ .05	59.41	
Below Pole.	June 27,'02	1 H. Draconis s.p.	38.69	58.57	+ .18	58.75	58.92
	Sept. 22,'02	λ Urs. min.	39.08	58.96	— .05	58.91	
	Sept. 26,'02	76 Draconis	39.42	59.30	— .20	59.10	
	June 27,'02	51 H. Cephei s.p.	39.87	59.75	+ .04	59.79	58.61
	June 8,'03	λ Urs. min.	29.05	58.99	— .04	58.95	
	June 8,'03	ϵ Urs. min.	28.08	58.02	— .17	57.85	
	June 8,'03	δ Urs. min.	28.00	57.94	— .09	57.85	
	June 17,'02	δ Urs. min.	39.17	59.05	+ .09	59.14	58.81
	June 17,'02	51 H. Cephei s.p.	38.37	58.25	— .04	58.21	
	June 17,'02	1 H. Draconis s.p.	39.37	59.25	— .16	59.09	
	June 26,'02	Gr. 750 s.p.	39.21	59.09	— .09	59.00	58.57
	June 26,'02	51 H. Cephei s.p.	38.67	58.55	— .05	58.50	
	June 25,'03	51 H. Cephei s.p.	28.29	58.23	— .05	58.18	
	June 25,'03	1 H. Draconis s.p.	28.73	58.67	— .18	58.49	
	June 25,'03	λ Urs. min.	28.68	58.62	+ .04	58.66	
							59.11

TABLE II. — DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
CEPHEI 121 HS., 6.3 MAG., R.A. $8^h 54^m 32^s$.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.o.	Diff. Flexure.	$\delta - 1900.o.$	
			84°34'	84°34'		84°34'	
							Mean.
W.D.	Feb. 22,'02	λ Urs. min. s.p.	32.02	59.66	— .15	59.51	58.14
	Mar. 29,'02	λ Urs. min. s.p.	30.14	57.78	— .15	57.63	
	Mar. 29,'02	51 H. Cephei	29.71	57.35	— .06	57.29	
W.R.	Apr. 15,'02	30 H. Camel.	32.57	60.21	+ .03	60.24	59.24
	Mar. 25,'03	λ Urs. min. s.p.	18.29	59.77	— .13	59.64	
	Mar. 25,'03	30 H. Camel.	18.52	60.00	+ .03	60.03	
	Mar. 25,'03	Polaris s.p.	17.57	59.05	— .13	58.92	
	Mar. 28,'03	30 H. Camel.	17.39	58.87	+ .03	58.90	
	Mar. 28,'03	Gr. 750 s.p.	16.42	57.90	— .21	57.69	
E.D.	Mar. 4,'02	δ Urs. min. s.p.	29.40	57.04	+ .17	57.21	58.06
	Mar. 5,'02	51 H. Cephei	30.15	57.79	+ .05	57.84	
	Mar. 5,'02	δ Urs. min. s.p.	30.50	58.14	+ .17	58.31	
	Feb. 13,'03	Gr. 750	16.78	58.26	+ .01	58.27	
	Feb. 13,'03	δ Urs. min. s.p.	17.04	58.52	+ .17	58.69	
E.R.	Mar. 21,'02	1 H. Draconis	30.75	58.39	— .06	58.33	58.84
	Mar. 27,'02	λ Urs. min. s.p.	31.58	59.22	+ .14	59.36	
W.D.	Sept. 22,'02	λ Urs. min.	30.86	58.50	— .16	58.34	59.21
	Oct. 1,'02	1 H. Draconis s.p.	32.21	59.85	+ .07	59.92	
	Oct. 9,'02	λ Urs. min.	32.61	60.25	— .16	60.09	
	Oct. 9,'02	Polaris	31.01	58.65	— .16	58.49	
W.R.	June 27,'02	51 H. Cephei s.p.	31.52	59.16	— .05	59.11	58.15
	Oct. 18,'02	1 H. Draconis s.p.	30.58	58.22	+ .07	58.29	
	Oct. 21,'02	30 H. Camel. s.p.	30.66	58.30	+ .04	58.34	
	Oct. 21,'02	Polaris	29.79	57.43	— .14	57.29	
	June 8,'03	ϵ Urs. min.	16.41	57.89	— .26	57.63	
	June 8,'03	δ Urs. min.	16.33	57.81	— .18	57.63	
E.D.	June 8,'03	λ Urs. min.	17.38	58.86	— .13	58.73	58.31
	June 17,'02	δ Urs. min.	30.80	58.44	+ .19	58.63	
	June 17,'02	51 H. Cephei s.p.	30.00	57.64	+ .06	57.70	
	June 17,'02	1 H. Draconis s.p.	31.00	58.64	— .06	58.58	
	Sept. 15,'02	1 H. Draconis s.p.	30.16	57.80	— .06	57.74	
	Sept. 16,'02	76 Draconis	29.99	57.63	+ .27	57.90	
	Nov. 21,'02	30 H. Camel s.p.	31.22	58.86	— .03	58.83	
	Nov. 21,'02	Polaris	31.00	58.64	+ .14	58.78	
E.R.	June 26,'02	Gr. 750 s.p.	29.81	57.45	+ .02	57.47	57.22
	June 26,'02	51 H. Cephei s.p.	29.27	56.91	+ .06	56.97	58.40

TABLE II. DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
 CAMELOP. S 664, 7.4 MAG., R.A. 11^h 2^m 30^s.

	Date.	Zero Star.	Year of Obs. Jan. 0.0.	1900.0.	Diff. Flexure.	δ —1900.0.	
			86° 9'	86° 10'		86° 10'	
Above Pole.	Mar. 21, '03	λ Urs. min. s.p.	59.58	57.87	— .11	57.76	Mean.
	Mar. 21, '03	Polaris s.p.	60.03	58.32	— .11	58.21	
	Mar. 21, '03	30 H. Camel.	59.52	57.81	+ .07	57.88	58.33
	Mar. 29, '03	Polaris s.p.	60.75	59.04	— .11	58.93	
	Mar. 29, '03	Gr. 750 s.p.	60.78	59.07	— .20	58.87	
	Mar. 28, '03	30 H. Camel.	60.70	58.99	+ .06	59.05	
	Mar. 28, '03	Gr. 750 s.p.	59.73	58.02	— .18	57.84	58.09
	Mar. 31, '03	43 H. Cephei s.p.	59.26	57.55	— .17	57.38	
	Feb. 6, '03	51 H. Cephei	59.39	57.68	+ .02	57.70	
	Feb. 6, '03	λ Urs. min. s.p.	59.74	58.03	+ .09	58.12	57.78
	Feb. 26, '03	λ Urs. min. s.p.	59.26	57.55	+ .09	57.64	
	Feb. 26, '03	30 H. Camel.	59.44	57.73	— .06	57.67	
	Feb. 21, '03	λ Urs. min. s.p.	59.28	57.57	+ .11	57.68	
	Feb. 21, '03	43 H. Cephei s.p.	59.32	57.61	+ .19	57.80	
	Feb. 25, '03	51 H. Cephei	58.91	57.20	+ .03	57.23	
	Feb. 25, '03	Polaris s.p.	59.73	58.02	+ .12	58.14	
	Feb. 25, '03	δ Urs. min. s.p.	60.38	58.67	+ .17	58.84	57.79
	Mar. 2, '03	δ Urs. min. s.p.	59.55	57.84	+ .17	58.01	
	Mar. 2, '03	51 H. Cephei	58.44	56.73	+ .02	56.75	
	Mar. 2, '03	1 H. Draconis	59.62	57.91	— .09	57.82	
	Mar. 2, '03	Polaris s.p.	59.39	57.68	+ .12	57.80	
						58.00	

DECLINATIONS OF CERTAIN NORTH POLAR STARS 237

TABLE II.—DECLINATIONS FOR 1900.0. FROM COMPARISON WITH ZERO STARS.
URS. MIN., 3 HS., 6.2 MAG., R.A. 12^h 14^m 23^s.

	Date.	Zero Star.	Year of Obs. Jan. 0.0.	1900.0.	Diff. Flexure.	δ —1900.0.
Above Pole.			88° 14'	88° 15'		88° 15'
	Apr. 11, '02	Polaris s.p.	35.39	15.28	— .07	15.21
	Apr. 11, '02	76 Draconis s.p.	37.05	16.94	— .24	16.70
	Apr. 24, '02	Polaris s.p.	35.88	15.77	— .07	15.70
	Mar. 28, '03	Polaris s.p.	16.62	16.46	— .07	16.39
	Apr. 10, '02	76 Draconis s.p.	35.04	14.93	— .21	14.72
	Apr. 15, '02	30 H. Camel.	36.43	16.32	+ .10	16.42
	May 13, '02	Polaris s.p.	34.08	13.97	+ .06	14.03
	May 22, '02	ϵ Urs. min.	35.43	15.32	— .12	15.20
	May 25, '02	Gr. 750 s.p.	35.13	15.02	+ .13	15.15
	Feb. 6, '03	51 H. Cephei	15.11	14.95	— .02	14.93
	Feb. 6, '03	λ Urs. min.	15.46	15.30	+ .05	15.35
	Feb. 25, '03	51 H. Cephei	13.98	13.82	— .02	13.80
	Feb. 25, '03	Polaris s.p.	14.80	14.64	+ .07	14.71
	Feb. 25, '03	δ Urs. min.	15.45	15.29	+ .12	15.41
	Mar. 2, '03	δ Urs. min.	15.61	15.45	+ .12	15.57
	Mar. 2, '03	51 H. Cephei	14.50	14.34	— .03	14.31
	Mar. 2, '03	1 H. Draconis	15.68	15.52	— .14	15.38
	Mar. 2, '03	Polaris s.p.	15.45	15.29	+ .07	15.36
Below Pole.	Dec. 11, '01	43 H. Cephei	54.54	14.49	— .14	14.35
	Jan. 8, '02	Polaris	34.03	13.92	— .07	13.85
	Jan. 8, '02	ϵ Urs. min. s.p.	32.78	12.67	+ .15	12.82
	Oct. 1, '02	1 H. Draconis s.p.	34.51	14.40	+ .16	14.56
	Oct. 20, '02	Polaris	33.97	13.86	— .06	13.80
	Oct. 24, '02	1 H. Draconis s.p.	33.96	13.85	+ .15	14.00
	Oct. 24, '02	Polaris	34.81	14.70	— .06	14.64
	Oct. 28, '01	76 Draconis	54.23	14.18	+ .19	14.37
	Nov. 18, '01	43 H. Cephei	54.05	14.00	+ .12	14.12
	Nov. 21, '02	Polaris	34.94	14.83	+ .06	14.89
	Nov. 24, '02	Gr. 750	36.16	16.05	+ .13	16.18
	Oct. 22, '01	43 H. Cephei	54.03	13.98	+ .14	14.12
	Oct. 29, '01	76 Draconis	56.00	15.95	+ .21	16.16
	Nov. 9, '01	43 H. Cephei	52.99	12.94	+ .14	13.08
	Nov. 19, '02	Polaris	33.87	13.76	+ .07	13.83
	Nov. 21, '02	Polaris	34.08	13.97	+ .07	14.04
	Nov. 21, '02	Gr. 750	35.22	15.11	+ .15	15.26
						14.85

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
32 H. CAMELOP. PR., 6.3 MAG., R.A. 12^h 48^m 16^s.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.o.	Diff Flexure.	δ —1900.o.	
			83°56'	83°57'		83°57'	
Above Pole.	Apr. 11,'02	76 Draconis s.p.	63.39	42.57	— .33	42.24	Mean. "41.45
	Apr. 11,'02	Polaris s.p.	61.73	40.91	— .16	40.75	
	Mar. 21,'03	λ Urs. min. s.p.	42.83	41.61	— .16	41.45	
	Mar. 21,'03	30 H. Camel. s.p.	42.77	41.55	+ .02	41.57	
	Mar. 21,'03	Polaris s.p.	43.28	42.06	— .16	41.90	
	Mar. 29,'03	Polaris s.p.	42.52	41.30	— .16	41.14	
	Mar. 29,'03	Gr. 750 s.p.	42.55	41.33	— .25	41.08	
	Apr. 29,'02	Polaris s.p.	62.81	41.99	— .14	41.85	41.27
	Apr. 29,'02	Gr. 750 s.p.	62.81	41.99	— .22	41.77	
	Mar. 25,'03	λ Urs. min. s.p.	42.38	41.16	— .14	41.02	
	Mar. 25,'03	30 H. Camel. s.p.	42.61	41.39	+ .02	41.41	
	Mar. 25,'03	Polaris s.p.	41.66	40.44	— .14	40.30	
	May 16,'02	Polaris s.p.	61.18	40.36	+ .15	40.51	40.72
	May 16,'02	43 H. Cephei s.p.	61.03	40.21	+ .21	40.42	
	May 22,'02	ϵ Urs. min. s.p.	61.96	41.14	— .03	41.11	
	Mar. 1,'03	Polaris s.p.	41.92	40.70	+ .15	40.85	
	Feb. 6,'03	76 Draconis s.p.	43.27	42.05	+ .33	42.38	41.67
	Feb. 6,'03	1 H. Draconis s.p.	42.20	40.98	— .04	40.94	
	Feb. 25,'03	51 H. Cephei s.p.	42.02	40.80	+ .08	40.88	
	Feb. 25,'03	Polaris s.p.	42.84	41.62	+ .17	41.79	
	Feb. 25,'03	δ Urs. min. s.p.	43.49	42.27	+ .22	42.49	
	Apr. 28,'03	Polaris s.p.	42.61	41.39	+ .17	41.56	
Below Pole.	Jan. 8,'02	Polaris s.p.	62.02	41.20	— .17	41.03	41.44
	Jan. 8,'02	ϵ Urs. min. s.p.	60.77	39.95	+ .05	40.00	
	Oct. 8,'02	λ Urs. min. s.p.	63.62	42.80	— .17	42.63	
	Oct. 8,'02	Polaris s.p.	63.09	42.27	— .17	42.10	
	Oct. 24,'02	1 H. Draconis s.p.	62.16	41.34	+ .05	41.39	41.58
	Oct. 24,'02	Polaris s.p.	63.01	42.19	— .16	42.03	
	Dec. 18,'02	Polaris s.p.	62.25	41.43	— .16	41.27	
	Dec. 18,'02	Gr. 750 s.p.	62.70	41.88	— .23	41.65	
	Nov. 12,'02	Polaris s.p.	62.31	41.49	+ .15	41.64	41.48
	Nov. 28,'02	Polaris s.p.	61.98	41.16	+ .15	41.31	
	Dec. 2,'01	Polaris s.p.	80.43	40.02	+ .17	40.19	40.60
	Nov. 19,'02	Polaris s.p.	61.64	40.82	+ .18	41.00	
							41.28

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
32 H. CAMELOP. SEQ., 5.5 MAG., R.A. 12^h 48^m 23^s.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.o.	Diff. Flexure.	δ —1900.o.	
			83°56'	83°57'		83°57'	
W.D.	Apr. 24,'02	Polaris s.p.	43.58	22.76	— .16	22.60	Mean.
	Apr. 28,'02	Polaris s.p.	43.28	22.46	— .16	22.30	
	Mar. 29,'03	Polaris s.p.	24.67	23.43	— .16	23.27	22.84
	Mar. 29,'03	Gr. 750 s.p.	24.70	23.46	— .25	23.21	
W.R.	June 3,'02	Polaris s.p.	44.74	23.92	— .14	23.78	
	June 3,'02	Gr. 750 s.p.	44.32	23.50	— .22	23.28	23.43
	June 8,'02	Polaris s.p.	44.18	23.36	— .14	23.22	
E.D.	May 9,'02	43 H. Cephei s.p.	42.53	21.71	+ .21	21.92	
	May 9,'02	Polaris s.p.	43.99	23.17	+ .15	23.32	22.66
	May 13,'02	Polaris s.p.	43.16	22.34	+ .15	22.49	
	Mar. 1,'03	Polaris s.p.	24.00	22.76	+ .15	22.91	
E.R.	May 25,'02	Polaris s.p.	44.36	23.54	+ .17	23.71	
	Feb. 24,'03	δ Urs. min. s.p.	24.21	22.97	+ .22	23.19	
	Feb. 24,'03	λ Urs. min. s.p.	25.11	23.87	+ .16	24.03	
	Feb. 24,'03	30 H. Camel. s.p.	24.91	23.67	— .01	23.66	
	Feb. 24,'03	Polaris s.p.	23.92	22.68	+ .17	22.51	23.70
	Mar. 2,'03	δ Urs. min. s.p.	25.47	24.23	+ .22	24.45	
	Mar. 2,'03	51 H. Cephei s.p.	24.36	23.12	+ .07	23.19	
	Mar. 2,'03	1 H. Draconis s.p.	25.54	24.30	— .04	24.26	
	Mar. 2,'03	Polaris s.p.	25.31	24.07	+ .17	24.24	
	Apr. 28,'03	Polaris s.p.	24.86	23.62	+ .17	23.79	
W.D.	Oct. 9,'02	λ Urs. min.	45.92	25.10	— .17	24.93	
	Oct. 9,'02	Polaris	44.32	23.50	— .17	23.33	
	Oct. 30,'02	Polaris	44.72	23.90	— .17	23.73	23.94
	Oct. 30,'02	Gr. 750	45.43	24.61	— .25	24.36	
	Oct. 31,'02	Polaris	44.32	23.50	— .17	23.33	
W.R.	Oct. 7,'02	76 Draconis	45.59	24.77	— .28	24.49	
	Oct. 21,'02	30 H. Camel. s.p.	45.74	24.92	+ .02	24.94	24.44
	Oct. 21,'02	Polaris	44.87	24.05	— .16	23.89	
E.D.	Nov. 24,'02	Polaris	44.41	23.59	+ .15	23.74	
	Nov. 24,'02	Gr. 750	45.63	24.81	+ .22	25.03	24.38
E.R.	Nov. 21,'02	Polaris	43.34	22.52	+ .18	22.70	23.31
	Nov. 21,'02	Gr. 750	44.48	23.66	+ .26	23.92	23.59

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
CEPHEI 135 HS.; 6.1 MAG., R.A. $13^{\text{h}} 45^{\text{m}} 10^{\text{s}}$.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.0	Diff, Flexure.	δ —1900.0.	
			$83^{\circ}14'$	$83^{\circ}15'$		$83^{\circ}15'$	
Above Pole.	Apr. 28, '02	Polaris	s.p. 37.78	13.82	— .17	13.65	Mean.
	June 8, '02	Gr. 750	s.p. 41.28	17.32	— .26	17.06	
	June 8, '02	Polaris	s.p. 38.42	14.46	— .17	14.29	14.90
	Mar. 25, '03	51 H. Cephei	20.00	14.06	— .08	13.98	
	Mar. 25, '03	Polaris	s.p. 21.64	15.70	— .17	15.53	
	Apr. 29, '02	Polaris	s.p. 39.45	15.49	— .15	15.34	
	Apr. 29, '02	Gr. 750	s.p. 39.45	15.49	— .23	15.26	15.34
	June 3, '02	Polaris	s.p. 39.74	15.78	— .15	15.63	
	June 3, '02	Gr. 750	s.p. 39.32	15.36	— .23	15.13	
	May 9, '02	Polaris	s.p. 38.42	14.46	+ .16	14.62	
	May 9, '02	43 H. Cephei	s.p. 36.96	13.00	+ .22	13.22	
	May 13, '02	Polaris	s.p. 38.65	14.69	+ .16	14.85	14.79
	May 16, '02	43 H. Cephei	s.p. 39.33	15.37	+ .22	15.59	
	May 16, '02	Polaris	s.p. 39.48	15.52	+ .16	15.68	
	May 25, '02	Polaris	s.p. 39.39	15.43	+ .18	15.61	
	Feb. 25, '03	51 H. Cephei	19.44	13.50	+ .09	13.59	14.85
	Feb. 25, '03	Polaris	s.p. 20.76	14.82	+ .18	15.00	
	Feb. 25, '03	δ Urs. min.	s.p. 20.91	14.97	+ .23	15.20	
	Jan. 8, '02	Polaris	40.30	16.34	— .19	16.15	
	Jan. 8, '02	ϵ Urs. min.	s.p. 39.05	15.09	+ .03	15.12	16.26
Below Pole.	Oct. 8, '02	λ Urs. min.	40.65	16.69	— .19	16.50	
	Oct. 8, '02	Polaris	40.42	16.46	— .19	16.27	
	Oct. 9, '02	λ Urs. min.	41.70	17.74	— .19	17.55	
	Oct. 9, '02	Polaris	40.10	16.14	— .19	15.95	
	Dec. 6, '01	43 H. Cephei	57.27	15.29	— .23	15.06	
	Dec. 6, '01	Polaris	56.04	14.06	— .17	13.89	
	Oct. 21, '02	30 H. Camel.	s.p. 39.45	15.49	+ .01	15.50	14.72
	Oct. 21, '02	Polaris	38.58	14.62	— .17	14.45	
	Dec. 18, '02	Polaris	38.64	14.68	— .17	14.51	
	Dec. 18, '02	Gr. 750	39.09	15.13	— .24	14.89	
	Nov. 12, '02	Polaris	39.37	15.41	+ .17	15.58	
	Nov. 21, '02	30 H. Camel.	s.p. 39.40	15.44	.00	15.44	
	Nov. 21, '02	Polaris	39.14	15.18	+ .17	15.35	15.67
	Nov. 24, '02	Polaris	39.28	15.32	+ .17	15.49	
	Nov. 24, '02	Gr. 750	40.50	16.54	+ .24	16.78	
	Nov. 28, '02	Polaris	39.16	15.20	+ .17	15.37	
	Nov. 19, '02	Polaris	38.43	14.47	+ .19	14.66	14.66
							15.15

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
URS. MIN. 57 B, 7.1 MAG., R.A. 15^h 9^m 21^s.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.0.	Diff. Flexure.	δ —1900.0.	
			87°36'	87°37'		87°37'	
Above Pole.	May 2, '02	30 H. Camel.	38.06	5.23	+ .09	5.32	
	June 13, '02	Gr. 750 s.p.	37.87	5.04	— .17	4.87	Mean.
	June 13, '02	51 H. Cephei s.p.	35.75	2.92	— .12	2.80	
	Mar. 21, '03	λ Urs. min. s.p.	22.35	3.11	— .08	3.03	3.78
	Mar. 21, '03	30 H. Camel.	22.29	3.05	+ .10	3.15	
	Mar. 21, '03	Polaris s.p.	22.80	3.56	— .08	3.48	
	Apr. 29, '02	Polaris s.p.	35.87	3.04	— .07	2.97	
	Apr. 29, '02	Gr. 750 s.p.	35.87	3.04	— .15	2.89	3.45
	June 8, '02	Polaris s.p.	37.38	4.55	— .07	4.48	
	May 8, '02	Gr. 750 s.p.	38.12	5.29	+ .15	5.44	
	May 8, '02	ϵ Urs. min.	37.08	4.25	— .10	4.15	
	May 13, '02	Polaris s.p.	35.78	2.95	+ .08	3.03	4.41
	Apr. 27, '03	Gr. 750 s.p.	23.82	4.58	+ .15	4.73	
	Apr. 27, '03	51 H. Cephei s.p.	23.81	4.57	+ .11	4.68	
	May 25, '02	Polaris s.p.	37.78	4.95	+ .08	5.03	
	June 26, '02	Gr. 750 s.p.	37.27	4.44	+ .17	4.61	4.92
	June 26, '02	51 H. Cephei s.p.	37.81	4.98	+ .13	5.11	
Below Pole.	Oct. 28, '02	Polaris	35.14	2.31	— .08	2.23	
	Oct. 28, '02	Gr. 750	37.57	4.74	— .16	4.58	
	Oct. 30, '02	Polaris	35.61	2.78	— .08	2.70	3.37
	Oct. 30, '02	Gr. 750	36.32	3.49	— .16	3.33	
	Oct. 31, '02	Polaris	36.93	4.10	— .08	4.02	
	Jan. 22, '02	Gr. 750	36.44	3.61	— .15	3.46	
	Jan. 22, '02	δ Urs. min. s.p.	36.13	3.30	+ .02	3.32	
	Dec. 18, '02	Polaris	36.26	3.43	— .08	3.35	3.57
	Dec. 18, '02	Gr. 750	36.71	3.88	— .15	3.73	
	Jan. 26, '03	Gr. 750	23.39	4.15	— .15	4.00	
	Nov. 21, '02	30 H. Camel. s.p.	37.22	4.39	— .10	4.29	
	Nov. 21, '02	Polaris	37.00	4.17	+ .07	4.24	3.94
	Nov. 24, '02	Polaris	35.73	2.90	+ .07	2.97	
	Nov. 24, '02	Gr. 750	36.95	4.12	+ .14	4.26	
	Nov. 19, '02	Polaris	36.15	3.32	+ .09	3.41	3.41
							3.86

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
URS. MIN. 33 HS., 7.5 MAG., R.A. 15^h 53^m 47^s.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.o.	Diff. Flexure.	δ —1900.o.
			83°14'	83°14'		83°14'
						Mean.
Above Pole.	W.D. June 13,'02	Gr. 750 s.p.	38.01	59.01	— .26	58.75
	June 13,'02	51 H. Cephei s.p.	35.89	56.89	— .21	56.68
	June 14,'02	Gr. 750 s.p.	37.66	58.66	— .26	58.40
	W.R. Apr. 29,'02	Polaris s.p.	36.74	57.74	— .15	57.59
	Apr. 29,'02	Gr. 750 s.p.	36.74	57.74	— .23	57.51
	June 8,'02	Polaris s.p.	38.29	59.29	— .15	59.14
						58.08
	E.D. May 8,'02	Gr. 750 s.p.	37.02	58.02	+ .23	58.25
	May 8,'02	ϵ Urs. min. s.p.	35.98	56.98	— .02	56.96
	May 13,'02	Polaris s.p.	35.98	56.98	+ .16	57.14
	Apr. 9,'03	76 Draconis s.p.	26.40	57.92	+ .30	58.22
	Apr. 9,'03	1 H. Draconis	26.77	58.29	— .02	58.27
	Apr. 9,'03	30 H. Camel.	26.80	58.32	00	58.32
	Apr. 9,'03	Gr. 750 s.p.	26.70	58.22	+ .23	58.45
	E.R. May 22,'02	δ Urs. min. s.p.	37.20	58.20	+ .07	58.27
	May 25,'02	Polaris s.p.	38.32	59.32	+ .18	59.50
	June 26,'02	Gr. 750 s.p.	37.29	58.29	+ .26	58.55
	June 26,'02	51 H. Cephei s.p.	37.83	58.83	+ .22	59.05
	Apr. 27,'03	ϵ Urs. min.	26.14	57.66	— .02	57.64
	Apr. 27,'03	δ Urs. min.	25.60	57.12	+ .07	57.19
						58.37
Below Pole.	W.D. Oct. 28,'02	Polaris	35.81	56.81	— .19	56.62
	Oct. 28,'02	Gr. 750	38.24	59.24	— .27	58.97
	Oct. 30,'02	Polaris	37.57	58.57	— .19	58.38
	Oct. 30,'02	Gr. 750	38.28	59.28	— .27	59.01
						58.24
	W.R. Nov. 24,'02	Polaris	35.41	56.41	+ .17	56.58
	Nov. 24,'02	Gr. 750	36.63	57.63	+ .24	57.87
	E.D. Feb. 5,'03	Polaris	24.71	56.23	+ .17	56.40
	Feb. 5,'03	Gr. 750	25.80	57.32	+ .24	57.56
	Feb. 13,'03	Gr. 750	26.16	57.68	+ .24	57.92
	Feb. 13,'03	δ Urs. min. s.p.	25.90	57.42	+ .08	57.50
	E.R.					
						57.98

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
CEPHEI 3. HS., 7.0 MAG., R.A. 20^h 13^m 59^s.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.0.	Diff. Flexure.	δ —1900.0.	
Above Pole			84° 22'	84° 22'		84° 22'	
	W.D. June 5, '02	δ Urs. min.	59.19	37.15	— .05	37.10	Mean.
	June 27, '02	1 H. Draconis s.p.	61.28	39.24	— .33	38.91	38.00
	Oct. 18, '02	1 H. Draconis s.p.	60.15	38.11	— .29	37.82	
	Oct. 21, '02	30 H. Camel. s.p.	60.35	38.31	— .26	38.05	
	W.R. Oct. 21, '02	Polaris	61.22	39.18	— .08	39.10	38.38
	Oct. 24, '02	1 H. Draconis s.p.	61.11	39.07	— .29	38.78	
	Oct. 24, '02	Polaris	60.26	38.22	— .08	38.14	
	June 17, '02	δ Urs. min.	59.72	37.68	+ .04	37.72	
	E.D. June 17, '02	51 H. Cephei s.p.	60.52	38.48	+ .17	38.65	38.32
	June 17, '02	1 H. Draconis s.p.	59.92	37.88	+ .29	38.17	
	Sept. 15, '02	1 H. Draconis s.p.	60.48	38.44	+ .29	38.73	
	E.R. June 26, '02	Gr. 750 s.p.	60.76	38.72	+ .24	38.96	39.21
	June 26, '02	51 H. Cephei s.p.	61.30	39.26	+ .20	39.46	
	W.D. Feb. 22, '02	λ Urs. min. s.p.	60.39	38.35	— .11	38.24	38.53
Below Pole.	Mar. 29, '02	λ Urs. min. s.p.	60.66	38.62	— .11	38.51	
	Mar. 29, '02	51 H. Cephei	61.09	39.05	— .20	38.85	
	W.R. Feb. 15, '02	Gr. 750	59.90	37.86	— .22	37.64	37.64
	Feb. 15, '02	51 H. Cephei	59.86	37.82	— .18	37.64	
	Apr. 10, '02	76 Draconis s.p.	59.62	37.58	+ .05	37.63	
	E.D. Mar. 4, '02	δ Urs. min. s.p.	60.14	38.10	+ .05	38.15	37.93
	Mar. 5, '02	51 H. Cephei	59.93	37.89	+ .17	38.06	
	Mar. 5, '02	δ Urs. min. s.p.	59.58	37.54	+ .05	37.59	
	E.R. Mar. 19, '02	λ Urs. min. s.p.	58.77	36.73	+ .11	36.84	37.83
	Mar. 19, '02	51 H. Cephei	61.02	38.98	+ .19	39.17	
	Mar. 8, '03	1 H. Draconis	70.22	37.18	+ .31	37.49	38.23

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
CEPHEI GR. 3548, 7.3 MAG., R.A. 21^h 19^m 35^s.

	Date.	Zero Star.	Year of Obs. Jan. 00.	1900.0.	Diff. Flexure.	δ —1900.0.
Above Pole.			86°37'	86°37'		86°37'
	W.D.	Sept. 22, '02 λ Urs. min.	55.35	24.65	— .05	24.60
		Oct. 8, '02 λ Urs. min.	54.35	23.65	— .05	23.60
		Oct. 8, '02 Polaris	54.58	23.88	— .05	23.83
	W.R.	Oct. 10, '01 76 Draconis	39.34	23.99	+ .08	24.07
		Sept. 26, '02 λ Urs. min.	54.04	23.34	— .05	23.29
	E.D.	Oct. 23, '01 30 H. Camel. s.p.	39.36	24.01	+ .21	24.22
		Oct. 28, '01 76 Draconis	40.18	24.83	— .08	24.75
		Nov. 21, '02 30 H. Camel. s.p.	54.36	23.66	+ .21	23.87
		Nov. 21, '02 Polaris	54.58	23.88	+ .04	23.92
	E.R.	Oct. 30, '01 76 Draconis	38.90	23.55	— .09	23.46
		June 26, '02 Gr. 750 s.p.	55.75	25.05	+ .19	25.24
		June 26, '02 51 H. Cephei s.p.	56.29	25.59	+ .15	25.74
	W.D.	Mar. 29, '02 51 H. Cephei	56.49	25.79	— .15	25.64
		Mar. 29, '02 λ Urs. min. s.p.	56.06	25.36	— .06	25.30
Below Pole.		Apr. 11, '02 76 Draconis s.p.	54.17	23.47	+ .11	23.58
		Apr. 11, '02 Polaris s.p.	55.83	25.13	— .06	25.07
	W.R.	Apr. 10, '02 76 Draconis s.p.	54.84	24.14	+ .10	24.24
		Apr. 15, '02 30 H. Camel.	53.01	22.31	— .21	22.10
	E.D.	Mar. 4, '02 δ Urs. min. s.p.	55.92	25.22	00	25.22
		Mar. 5, '02 δ Urs. min. s.p.	54.96	24.26	00	24.26
		Mar. 5, '02 51 H. Cephei	55.31	24.61	+ .12	24.73
		Feb. 13, '03 Gr. 750	70.88	24.85	+ .16	25.01
		Feb. 13, '03 δ Urs. min. s.p.	70.62	24.59	00	24.59
	E.R.	Mar. 19, '02 51 H. Cephei	56.44	25.74	+ .14	25.88
		Mar. 19, '02 λ Urs. min. s.p.	54.19	23.49	+ .06	23.55
		Feb. 24, '03 δ Urs. min. s.p.	71.09	25.06	00	25.06
		Feb. 24, '03 λ Urs. min. s.p.	70.19	24.16	+ .06	24.22
		Feb. 24, '03 30 H. Camel.	70.39	24.36	+ .23	24.59
		Feb. 24, '03 Polaris s.p.	71.38	25.35	+ .05	25.40
						24.28

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
32 H. CEPHEI, 5.3 MAG., R.A. 22^h 21^m 18^s.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.0.	Diff. Flexure.	δ —1900.0.
Above Pole.			85°36'	85°36'		85°36'
						Mean.
	W.D. Sept. 22,'02	λ Urs. min.	52.90	16.37	— .07	16.30
	Oct. 1,'02	1 H. Draconis s.p.	53.61	17.08	— .30	16.78
						16.54
	W.R. Oct. 10,'01	76 Draconis	35.16	16.89	+ .06	16.95
	Oct. 24,'02	1 H. Draconis s.p.	54.57	18.04	— .27	17.77
	Oct. 24,'02	Polaris	53.72	17.19	— .06	17.13
						17.28
	E.D. Oct. 28,'01	76 Draconis	36.26	17.99	— .07	17.92
Below Pole.	June 26,'02	λ Urs. min.	52.29	15.76	+ .06	15.82
	Sept. 15,'02	1 H. Draconis s.p.	53.63	17.10	+ .27	17.37
						17.04
	E.R. Oct. 30,'01	76 Draconis	35.48	17.21	— .07	17.14
	June 26,'02	Gr. 750 s.p.	54.65	18.12	+ .21	18.33
	June 26,'02	51 H. Cephei s.p.	55.19	18.66	+ .17	18.83
						18.10
	W.D. Mar. 29,'02	51 H. Cephei	54.69	18.16	— .17	17.99
	Mar. 29,'02	λ Urs. min. s.p.	54.26	17.73	— .08	17.65
	Apr. 11,'02	76 Draconis s.p.	53.31	16.78	+ .09	16.87
	Apr. 11,'02	Polaris s.p.	54.97	18.44	— .08	18.36
	Apr. 28,'02	Polaris s.p.	55.28	18.75	— .08	18.67
						17.91
	W.R. Apr. 10,'02	76 Draconis s.p.	53.88	17.35	+ .08	17.43
	Apr. 24,'02	1 H. Draconis	53.94	17.41	— .25	17.16
						17.30
	E.D. Mar. 24,'02	λ Urs. min. s.p.	53.71	17.18	+ .07	17.25
	Mar. 24,'02	51 H. Cephei	53.33	16.80	+ .14	16.94
	Feb. 13,'03	Gr. 750	72.15	17.36	+ .19	17.55
	Feb. 13,'03	δ Urs. min. s.p.	71.89	17.10	+ .03	17.13
						17.22
	E.R. Mar. 19,'02	51 H. Cephei	54.68	18.15	+ .16	18.31
	Mar. 19,'02	λ Urs. min. s.p.	52.43	15.90	+ .08	15.98
	Mar. 21,'02	1 H. Draconis	52.80	16.27	+ .28	16.55
	Feb. 21,'03	43 H. Cephei s.p.	72.17	17.38	.00	17.38
	Feb. 21,'03	λ Urs. min. s.p.	72.21	17.42	+ .08	17.50
						17.32

TABLE II.—DECLINATIONS FOR 1900.0 FROM COMPARISON WITH ZERO STARS.

36 H. CEPHEI, 5.7 MAG., R.A. 22^h 55^m 13^s.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.o.	Diff. Flexure.	δ —1900.o.
Above Pole.			83°48'	83°48'		83°48'
						Mean.
	W.D.	Oct. 4, '01 30 H. Camel. s.p.	59.23	39.96	— .30	39.66
		Sept. 22, '02 λ Urs. min.	78.46	39.91	— .11	39.80
						39.73
		Oct. 5, '01 30 H. Camel. s.p.	59.35	40.08	— .27	39.81
		Oct. 10, '01 76 Draconis	58.94	39.67	+ .03	39.70
		Dec. 6, '01 43 H. Cephei	59.06	39.79	— .03	39.76
	W.R.	Dec. 6, '01 Polaris	60.29	41.02	— .09	40.93
		Oct. 21, '02 30 H. Camel. s.p.	78.61	40.06	— .27	39.79
		Oct. 21, '02 Polaris	79.48	40.93	— .09	40.84
		Oct. 24, '02 1 H. Draconis s.p.	79.77	41.22	— .30	40.92
		Oct. 24, '02 Polaris	78.92	40.37	— .09	40.28
						40.25
	E.D.	Oct. 23, '01 30 H. Camel. s.p.	59.38	40.11	+ .27	40.38
		Oct. 25, '01 30 H. Camel. s.p.	58.22	38.95	+ .27	39.22
						39.80
	E.R.	Oct. 22, '01 43 H. Cephei	61.23	41.96	+ .04	42.00
Below Pole.		Nov. 26, '01 43 H. Cephei	60.77	41.50	+ .04	41.54
		Nov. 30, '01 30 H. Camel. s.p.	59.44	40.17	+ .31	40.48
						41.34
		Mar. 29, '02 51 H. Cephei	81.16	42.61	— .21	42.40
	W.D.	Mar. 29, '02 λ Urs. min. s.p.	80.73	42.18	— .12	42.06
		Apr. 28, '02 Polaris s.p.	79.22	40.67	— .12	40.55
		May 2, '02 30 H. Camel.	76.60	38.05	— .27	37.78
						40.70
	W.R.	Apr. 10, '02 76 Draconis s.p.	79.01	40.46	+ .04	40.50
		Apr. 15, '02 30 H. Camel.	77.11	38.56	— .27	38.29
						39.40
	E.D.	May 16, '02 43 H. Cephei s.p.	78.68	40.13	+ .04	40.17
		May 16, '02 Polaris s.p.	78.53	39.98	+ .10	40.08
						40.12
		Feb. 13, '03 51 H. Cephei	97.64	39.82	+ .21	40.03
		Feb. 24, '03 δ Urs. min. s.p.	97.51	39.69	+ .07	39.76
	E.R.	Feb. 24, '03 λ Urs. min. s.p.	96.61	38.79	+ .13	38.92
		Feb. 24, '03 30 H. Camel.	96.81	38.99	+ .30	39.29
		Feb. 24, '03 Polaris s.p.	97.80	39.98	+ .12	40.10
						40.12

TABLE II. — DECLINATION FOR 1900.0 FROM COMPARISON WITH ZERO STARS.
 CEPHEI 125 HS., 6.3 MAG., R.A. $23^h 51^m 46^s$.

	Date.	Zero Star.	Year of Obs. Jan. o.o.	1900.o.	Diff. Flexure.	δ —1900.o.	
			82°38'	82°38'		82°38'	
Above Pole.							
	Oct. 1,'02	1 H. Draconis s.p.	43.65	3.54	— .37	3.17	Mean.
	Oct. 6,'02	76 Draconis	44.40	4.29	+ .01	4.30	
	Oct. 6,'02	30 H. Camel. s.p.	45.13	5.02	— .33	4.69	4.32
	Oct. 7,'02	λ Urs. min.	45.01	4.90	— .15	4.75	
	Oct. 7,'02	Polaris	44.93	4.82	— .14	4.68	
	Oct. 5,'01	30 H. Camel. s.p.	23.02	2.97	— .29	2.68	
	Dec. 5,'01	43 H. Cephei	23.20	3.15	— .05	3.10	
	Dec. 6,'01	43 H. Cephei	23.46	3.41	— .05	3.36	3.42
	Dec. 6,'01	Polaris	24.69	4.64	— .11	4.53	
	Oct. 28,'01	76 Draconis	24.17	4.12	— .01	4.11	
	Nov. 18,'01	43 H. Cephei	25.01	4.96	+ .06	5.02	
	Nov. 21,'02	30 H. Camel. s.p.	42.64	2.53	+ .29	2.82	3.70
	Nov. 21,'02	Polaris	42.86	2.75	+ .12	2.87	
	Oct. 22,'01	43 H. Cephei	24.80	4.75	+ .06	4.81	
	Oct. 29,'01	76 Draconis	22.73	2.68	— .01	2.67	3.97
	Nov. 19,'02	Polaris	44.41	4.30	+ .13	4.43	
	Apr. 11,'02	76 Draconis s.p.	44.80	4.69	+ .02	4.71	
	Apr. 11,'02	Polaris s.p.	46.46	6.35	— .15	6.20	
	Apr. 28,'02	Polaris s.p.	45.29	5.18	— .15	5.03	
	Mar. 21,'03	λ Urs. min. s.p.	65.48	5.32	— .15	5.17	5.15
	Mar. 21,'03	30 H. Camel. s.p.	65.54	5.38	— .33	5.05	
	Mar. 21,'03	Polaris s.p.	65.03	4.87	— .15	4.72	
Below Pole.	Apr. 10,'02	76 Draconis s.p.	43.88	3.77	+ .01	3.78	
	Apr. 15,'02	30 H. Camel. s.p.	42.66	2.55	— .30	2.25	
	Mar. 25,'03	λ Urs. min. s.p.	62.81	2.65	— .14	2.51	2.78
	Mar. 25,'03	30 H. Camel. s.p.	62.58	2.42	— .30	2.12	
	Mar. 25,'03	Polaris s.p.	63.53	3.37	— .14	3.23	
	May 9,'02	Polaris s.p.	43.14	3.03	+ .13	3.16	
	May 9,'02	43 H. Cephei s.p.	44.60	4.49	+ .07	4.56	
	May 16,'02	43 H. Cephei s.p.	44.01	3.90	+ .07	3.97	3.72
	May 16,'02	Polaris s.p.	43.86	3.75	+ .13	3.88	
	May 24,'02	Polaris s.p.	43.02	2.91	+ .13	3.04	
	Feb. 13,'03	51 H. Cephei	64.01	3.85	+ .24	4.09	
	Mar. 2,'03	δ Urs. min. s.p.	63.58	3.42	+ .10	3.52	
	Mar. 2,'03	51 H. Cephei	64.69	4.53	+ .25	4.78	3.96
	Mar. 2,'03	1 H. Draconis	63.51	3.35	+ .35	3.70	
	Mar. 2,'03	Polaris s.p.	63.74	3.58	+ .15	3.73	
							3.88

TABLE III. — OBSERVED DECLINATIONS FOR 1900.0 COMPARED WITH CATALOGUE PLACES.

Name.	Right Ascension.			Declinations.				
				Observed.		Newcomb's Funda- mental Catalogue.	Berliner Jahrbuch for 1900.	B. J. for 1906 with Correc- tions, Reduced to 1900.0.
				Absolute.	Fr. Com- parison with Zero Stars.			
	h	m	s	°	'	"	"	"
43 <i>H. Cephei</i>	0	55	1	85	43	14.55	14.74	14.52
<i>Polaris</i>	1	22	33	88	46	26.64	26.61	26.50
Cephei, Br. 256	2	1	25	83	5	30.44		
Cephei 147 Hs.	3	8	35	84	33	[26.87]		
Cephei 149 Hs.	3	33	55	86	19	[56.87]		
<i>Gr. 750</i>	4	5	5	85	17	28.72	28.18	28.81
Cephei 157 Hs.	4	56	18	85	49	46.34		
Cephei 158 Hs.	5	29	55	85	8	49.92	49.60	
51 <i>H. Cephei</i>	6	53	45	87	12	20.57	20.53	20.05
Cephei 109 Hs.	7	53	2	84	20	49.76		
Urs. min. 4B.	7	58	3	88	55	59.29	59.36	
Ceph. 121 Hs.	8	54	32	84	34	58.33		
1 <i>H. Draconis</i>	9	22	51	81	46	6.98	6.91	6.72
30 <i>H. Camel.</i>	10	18	55	83	4	2.80	2.78	3.28
<i>Camel., s 664</i>	11	2	30	86	10	[57.78]	3.32	
Urs. min. 3 Hs.	12	14	23	88	15	14.74	15.20	
32 <i>H. Camel. pr.</i>	12	48	16	83	57	41.03		
32 <i>H. Camel. seq.</i>	12	48	23	83	57	23.31	23.39	
Ceph. 135 Hs.	13	45	10	83	15	14.99	15.14	
Urs. min. 57B	15	9	21	87	37	3.49	4.04	
Urs. min. 33 Hs.	15	53	47	83	14	[57.62]		
<i>ε Urs. min.</i>	16	56	12	82	12	[7.63]	7.68	7.85
<i>δ Urs. min.</i>	18	4	33	86	36	48.08	47.71	48.13
<i>λ Urs. min.</i>	19	22	30	88	59	15.98	15.81	15.94
Cephei 3 Hs.	20	13	59	84	22	38.10		
76 <i>Draconis</i>	20	49	51	82	9	40.36	40.01	40.23
Ceph., Gr. 3548	21	19	35	86	37	24.64	24.85	
32 <i>H. Cephei</i>	22	21	18	85	36	17.29		
36 <i>H. Cephei</i>	22	55	13	83	48	40.04	40.12	
39 <i>H. Cephei</i>	23	27	49	86	45	21.12	21.14	
Ceph. 125 Hs.	23	51	46	82	38	4.05	3.88	

